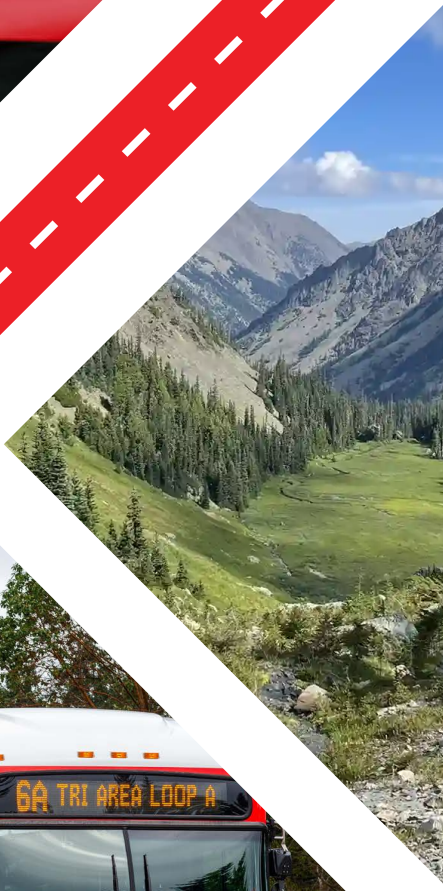

JEFFERSON TRANSIT

Climate Action Plan

PREPARED FOR:
Jefferson Transit Authority
December 2024
Project No. M2841.01

PREPARED BY:
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MAUL FOSTER ALONGI

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A Message from the General Manager

I am pleased to present Jefferson Transit Authority's first Climate Action Plan. At Jefferson Transit, we recognize that climate change is an urgent reality, bringing irreversible impacts that affect the quality of life and well-being of our riders, employees, and the broader community. Our region is increasingly facing extreme weather events—such as heat waves and intense rainfall—as well as rising sea levels and heightened wildfire risks. In a world facing increasing climate challenges, our goal as Jefferson County's transit authority is to prioritize the safety and comfort of our customers while helping to build a more resilient region.

Our Climate Action Plan charts the path for the next decade, leading us to a low-emissions and climate resilient public transit system by 2035.

As detailed in this Climate Action Plan, we are committed to taking steps to actively prepare for, respond to, and adapt to climate impacts within our operations. We also understand our unique role in contributing to community resilience by offering reliable, comfortable, and safe transit services in the face of climate-related challenges.

This plan outlines the actions we must take as an organization in the short term so that JTA achieves a 75% reduction in overall greenhouse gas emissions from 2022 levels by 2035 and a 95% reduction from 2022 levels by 2050. It also outlines how we can help reduce transportation-related emissions throughout Jefferson County by getting more people out of single-occupancy vehicles and onto the bus (or opting for other low-carbon transportation options).

We envision a future where everyone in the region has access to reliable and convenient zero-emissions transportation. Advancing this work will be no easy lift, but we are eager to learn from others and lead by example for other rural transit agencies looking to take climate action. In partnership with our customers, funders, local and regional governments, Tribes, other transit agencies, and partners, we are ready to take action to make this vision a reality.

Thank you for your ongoing support as we strive towards a climate-resilient future for Jefferson County.

Sincerely,

Nicole Gauthier

Nicole Gauthier
General Manager
Jefferson Transit Authority

Acknowledgements

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Special Thanks

We extend our heartfelt gratitude to the members of our workforce and community who have helped shape the direction of this Climate Action Plan. Your participation in engaging conversations, the survey, and the open house has provided invaluable insights and guidance on shaping the future of public transit in Jefferson County as we address the challenges of climate change.

Contents

Abbreviations

BEB	Battery-electric bus
BPA	Bonneville Power Administration
CAP	Climate Action Plan
CO_2e	Carbon Dioxide Equivalent
DHW	Domestic hot water
EV	Electric vehicle
GHG	Greenhouse gas
HVAC	Heating, ventilation, and air conditioning
JPUD	Jefferson Public Utilities District
JTA	Jefferson Transit Authority
MT	Metric tons
VMT	Vehicle miles traveled

Glossary

Adaptation: The process of adjusting to current or expected changes in climate and its effects, aiming to minimize damage.

Assets: People, resources, ecosystems, infrastructure, and the services they provide. Assets encompass both tangible and intangible elements that individuals or communities value.

Battery Electric Bus: A type of bus powered entirely by battery electricity, with no internal combustion engine.

Carbon Dioxide Equivalent (CO_2e): A unit used to compare the impact of different greenhouse gases, such as methane (CH_2) or nitrous oxide (N_2O), on global warming by expressing their emissions in terms of the amount of carbon dioxide that would have the same warming effect over a specific time period.

Climate Change: A long-term, persistent alteration in the climate, characterized by shifts in average conditions and their variability. Climate change can result from natural internal processes, external factors like volcanic eruptions or solar cycle variations, or ongoing human activities that alter atmospheric composition or land use.

Climate Hazard: An event or condition that may cause injury, illness, or death to people or damage to assets. In the context of climate change, hazards refer to climate-driven or exacerbated events or conditions.

Climate Impacts: The effects on natural and human systems resulting from climate hazards, which can include changes to ecosystems, economies, and communities.

Climate Resilience: The ability of a system, community, or organization to anticipate, prepare for, and respond to adverse climate events or trends, while also recovering from their impacts.

Electric Vehicle: An electric vehicle runs on electricity stored in its battery, which is charged via a plug-in connection or inductive charging system.

Greenhouse Gas Emissions Reduction: Processes and strategies aimed at decreasing the amount and speed of future climate change by reducing emissions of heat-trapping gases or by removing them from the atmosphere.

Net-Zero: Achieving a balance in greenhouse gas emissions, where the total amount produced by human activities is completely offset. This is accomplished by either reducing emissions or increasing the absorption of carbon dioxide from the atmosphere.

Risk: The potential for an action or event to negatively impact a system, community, or organization. It is assessed based on the likelihood of the event occurring (or failing to occur) and the consequences (impact) if it does happen.

Risk Assessment: An analysis conducted to evaluate the potential risks that various hazards pose to a system or asset, helping to inform decision-making and management strategies.

Vulnerability: The extent to which a system is prone to or unable to withstand the adverse effects of climate change.

Executive Summary

Jefferson Transit Authority (JTA) recognizes that climate change is a pressing issue with lasting effects on the quality of life and well-being of riders, employees, and the wider community. As an essential part of Jefferson County's transportation infrastructure, JTA faces distinct climate-related risks to its assets and operations. JTA also recognizes its responsibility to contribute to broader initiatives aimed at reducing greenhouse gas (GHG) emissions.

In December 2024, the JTA Board of Directors adopted this Climate Action Plan, which commits JTA to:

- Support countywide efforts to decrease vehicle miles traveled and transportation-related emissions, while achieving a 75% reduction in JTA's overall operational GHG emissions—referring to emissions from day-to-day activities and operations—from 2022 levels by 2035, and a 95% reduction by 2050.
- Ensure JTA's infrastructure and operations are resilient to the impacts of climate change, while supporting regional efforts to enhance community resilience against climate change effects.
- Improve JTA's governance to facilitate effective implementation of this plan.

The Climate Action Plan provides a roadmap including implementable actions to build a climate-resilient, low-emissions public transportation system in Jefferson County. The plan focuses on the next decade, through 2035, with longer-term goals set where feasible.

Reduce GHG Emissions	Build Climate Resilience	Improve Governance for Climate Action
GOAL 1: Support countywide efforts to reduce transportation emissions.	**GOAL 5:** Develop a resilient transit system that is adaptable to current and future climate challenges	**GOAL 8:** Ensure meaningful implementation of the Climate Action Plan through effective oversight, informed decision making, and clear accountability mechanisms.
GOAL 2: Reduce vehicle fleet GHG emissions by 85% from 2022 levels by 2035 and by 95% from 2022 levels by 2050.	**GOAL 6:** Promote resilient facilities and infrastructure that can endure both current and future climate impacts.	
GOAL 3: Achieve and maintain net-zero GHG emissions from JTA-controlled buildings and energy supply by 2045.	**GOAL 7:** Contribute towards building a more climate-resilient region.	
GOAL 4: Reduce GHG emissions associated with JTA employee commutes by 30% from 2022 levels by 2035 and by 80% from 2022 levels by 2050.		

1. Introduction

The Climate Action Plan offers a practical blueprint for Jefferson Transit Authority to implement over the next decade to help achieve a more climate-ready future.

Jefferson Transit Authority (JTA) is committed to serving the residents and visitors of Jefferson County, Washington through providing a safe, reliable, and comfortable public transit system. The agency's service area spans 259 square miles across east and west Jefferson County, from the shores of the Puget Sound to the Olympic Mountains and the Pacific Ocean. JTA provides transit in densely populated areas such as Port Townsend and the Tri-Area, as well as rural connections between regional destinations including Forks, Amanda Park, Port Townsend, Sequim, Brinnon, and Poulsbo.

The agency recognizes that climate change is causing irreversible changes to the planet and already affecting the quality of life and well-being of JTA riders, employees, and the broader community. This impact is evident in rising temperatures, more frequent rainfall and flooding, and an increase in the number of smoky days Jefferson County experiences each

JTA strives to be a part of the solution and a model for how rural transit agencies can help tackle the challenge of climate change.

summer. These trends are expected to intensify as global temperatures continue to increase.

JTA is dedicated to being part of the solution and a model for how rural transit agencies can help tackle the challenge of climate change. As part of this commitment to climate action, the agency has developed this Climate Action Plan (CAP) as a strategic roadmap for its climate action over the next decade. This plan includes specific actions that JTA will undertake to reduce greenhouse gas (GHG) emissions from transit operations and the community, while also addressing the impacts of climate change.

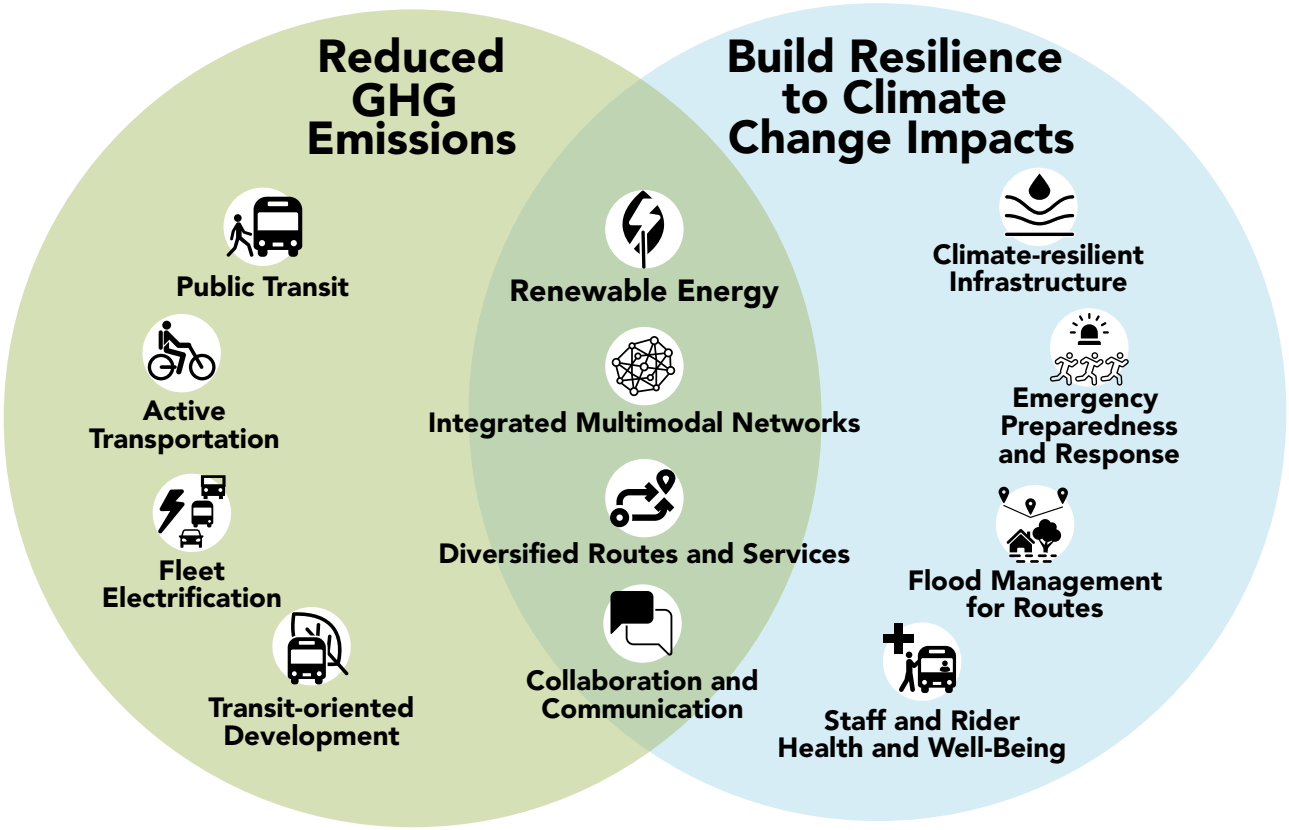
Climate Action Vision

JTA envisions a future where all Jefferson County residents and visitors have access to a low-emissions transit system that supports a thriving, resilient, and connected community. In this future, transit is the best transportation option for Jefferson County.

Climate Action Guiding Principles

The following guiding principles outline the core values and beliefs that shape JTA's approach to climate action.

1. Provide a model for how rural transit agencies can tackle the challenge of climate change.
2. Reflect the needs and priorities identified by the community that JTA serves.
3. Lead with equity by prioritizing strategies that promote transit accessibility and reliability throughout tthe county while benefiting vulnerable communities. Balance established transit climate action strategies with a willingness to explore innovative technologies and practices.
4. Promote initiatives that deliver multiple benefits, supporting the health, well-being, economic vitality, social fabric, and cultural diversity of Jefferson County.
5. Foster collaboration and partnerships with Tribes, local governments, agencies, and community groups to expand and enhance climate action throughout the region.
6. Draw on the best available science to inform decision-making that will impact the community now and in future generations.
7. Ensure that strategies are sustainable over time, avoiding the introduction of initiatives that cannot be maintained or progressed.
8. Support transparency and accountability of implementation by tracking key metrics that show progress towards goals.



In addition to strengthening governance for climate action, the Climate Action Plan focuses on reducing greenhouse gas emissions and building climate resilience. While some actions focus on one area, many contribute to both emissions reduction and resilience building.

Climate Action Plan Framework

The CAP framework is structured around focus areas, goals, strategies, and actions. The focus areas include lowering GHG emissions from operations and the community, enhancing resilience against climate change impacts, and improving governance for effective climate action.

The plan's goals provide the foundation for policies and programs that aim to achieve specific, measurable outcomes aligned with the vision of JTA, the community, and stakeholders. The strategies detail the proposed approaches to meet these goals. They are designed to be flexible and adaptable, recognizing the evolving nature of climate challenges and technological advancements. The actions in the plan are the specific tasks and activities that JTA can implement to operationalize the strategies. Through this framework, the CAP provides a ready-to-implement blueprint to help us achieve a more climate-ready future.

2. Climate Action Plan Development

The development of the Climate Action Plan was an iterative process that integrated JTA's priorities, emission-reduction and resilience best practices, community feedback, stakeholder input, and lessons learned from other agencies to create a cost-effective, feasible, and actionable plan.

The CAP was adopted by the JTA Board in December 2024. The development effort was led by a project team comprised of JTA staff, community partners, and consultants from Maul, Foster & Alongi, Gradient Xergy, and Shew Design. This process involved integrating insights on JTA's priorities and constraints, opportunities for reducing emissions and enhancing resilience, and community and stakeholder feedback gathered through various methods.

The development of the CAP was iterative, featuring multiple rounds of review and revisions to draft goals, strategies, and actions based on feedback, evaluation criteria, and emerging priorities. All input was carefully analyzed and balanced to produce a final CAP that is cost-effective, feasible, and ready for implementation.

Background Research and Assessments

The background research phase of the CAP development began with a review of existing documents, including regional plans like the Port Townsend and Jefferson County Climate Action Plan and the Climate and Resiliency Planning on the North Olympic Peninsula Final Report. It also involved reviewing JTA-specific plans, such as the Long-Range Plan, Transit Development Plan, and Electric Bus Feasibility Study. This review was complemented by interviews with JTA staff, which provided insights into JTA's operations, previous climate initiatives, and the challenges already faced in addressing climate-related issues. These discussions helped to identify strengths and weaknesses in current practices and set the stage for informed decision-making.

Next, a GHG emissions inventory was prepared to identify and quantify emissions sources within JTA's operations. This inventory encompassed emissions from JTA fleet vehicles, energy use in buildings, and employee commutes. By quantifying these sources, the analysis laid the groundwork for understanding JTA's overall carbon footprint and highlighted opportunities for emissions reductions. Further details on this inventory can be found in the Jefferson Transit Authority 2022 GHG Emissions Inventory Report.

Finally, a high-level assessment was completed focused on local climate hazards and their potential impacts on JTA's operations. Using existing plans and localized climate projections, the team analyzed threats such as sea level rise, extreme heat, changes in precipitation patterns, wildfires and smoke, and climate migration. This assessment, detailed in ***Chapter 3***, informed strategies and actions to enhance JTA's resilience to future climate impacts.

Community and Stakeholder Engagement

Throughout the project, JTA engaged the community and stakeholders using a variety of methods, including:

The consultant team presented at a public open house in Port Townsend on September 17, 2024, to share insights and gather community input on the Climate Action Plan.

- **Climate Action Plan Survey:** Available from April 15 to June 7, 2024, in both online and paper formats, this survey gathered broad public input on priorities for the CAP, as well as ideas for building climate resilience and increasing JTA ridership. See ***Appendix A*** for the survey questions and ***Appendix B*** for a summary of the results.
- **Interviews with JTA Staff and Project Team Members:** These discussions addressed JTA's priorities for GHG reduction and climate resilience, as well as the climate impacts currently affecting JTA operations and staff. They also explored challenges and opportunities related to climate change, increasing ridership, and fleet electrification.

- **Interviews on Fleet Electrification:** Conversations with JTA staff, representatives from the Jefferson Public Utility District (JPUD), and Link Transit provided insights on topics related to fleet electrification, including financial considerations, infrastructure needs, and operational best practices for a battery-electric bus fleet.
- **Coordination with Emergency Management Entities:** Discussions with JTA staff and representatives from the Jefferson County Department of Emergency Management, East Jefferson Fire and Rescue, and Disability Awareness Starts Here focused on transit's role in supporting countywide efforts to build resilience against severe weather events (e.g., flooding, wildfires, extreme heat) and respond to emergencies.
- **Student Engagement:** Two group discussions with students from Port Townsend High School, facilitated in collaboration with consultants conducting JTA's Comprehensive Operational Analysis, provided valuable insights into the factors that motivate youth to use transit, as well as the challenges they face.
- **Public Open Houses:** Two open houses, held on September 17, 2024 (in-person at the American Legion in Port Townsend) and September 23, 2024 (virtual on Zoom) provided additional opportunities for public engagement.
- **Collaboration with Other Agencies:** Ongoing coordination with agencies and organizations such as the JTA Board, the Transit Advisory Group, and the Port Townsend/Jefferson County Climate Action Committee helped guide the overall direction of the CAP throughout the development process.

Evaluation Criteria and Co-Benefits

From the background research, public input, and stakeholder consultations, a set of goals, strategies, and actions was developed (see ***Chapter 4***). JTA used an evaluation framework to assess how each measure contributes to GHG reduction or resilience-building objectives while considering key factors such as JTA's level of control, implementation timeline, high-level cost estimates, and associated co-benefits. This created an iterative process for identifying gaps, eliminating unfeasible actions, and refining the remaining actions. Table 1 provides a summary of the evaluation criteria and their scoring details. The supplemental resource, JTA Climate Action Plan Master List of Goals, Strategies, and Actions, houses the evaluation information.

Evaluation Criteria	Description	Scoring Details
JTA Control	Evaluates JTA's level of control over the implementation of the measure.	**LOW:** JTA lacks direct control but can coordinate with others. **MEDIUM:** JTA has some control but is not solely responsible. **HIGH:** JTA has full control for implementation.
Implementation Timeframe	Considers the expected timeline for the measure to become operational.	**LONG-TERM:** Operational by 2031 or beyond. **MID-TERM**: Operational between 2026-2030. **NEAR-TERM:** Operational in 2025.
High-Level Cost Estimate	Provides an estimated cost range for implementing the measure.	**LOW COST:** Less than $50,000 **MEDIUM COST:** $50,000 - $200,000 **HIGH COST:** Over $200,000
GHG Reduction Benefits	Evaluates the measure's potential to reduce GHG emissions.	**NO:** Minimal or unclear impact on GHG emissions reduction. **YES:** Directly or indirectly reduces GHG emissions.
Climate Resilience Benefits	Assesses if the measure enhances resilience to climate impacts.	**NO:** Minimal or unclear impact on climate resilience. **YES:** Directly or indirectly enhances climate resilience.
Equity Co-Benefits	Evaluates the measure's impact on social equity, especially for vulnerable populations.	**NO:** No enhancement of social equity or unclear impact. **YES:** Directly or indirectly enhances social equity.
Public Health Co-Benefits	Assesses whether the measure positively affects public health outcomes.	**NO:** No enhancement or unclear impact on public health. **YES:** Enhances public health outcomes.
Quality of Life Co-Benefits	Considers the impact of the measure on the quality of life for JTA staff, riders, and the broader community.	**NO:** No impact or unclear influence on quality of life. **YES:** Improves quality of life for stakeholders.
Engagement Co-Benefits	Evaluates how the measure facilitates engagement with stakeholders.	**NO:** Does not require or facilitate engagement or unclear impact. **YES:** Likely facilitates engagement with the public and other stakeholders.

Table 1: Evaluation criteria for GHG emission reduction and climate resilience actions

3. Climate Impacts Summary

Climate change is already affecting communities throughout Jefferson County. Even with ambitious climate action at a local and global level, Jefferson County will face a range of climate-related challenges in the future as global temperatures continue to increase.

As a critical part of the area's transportation infrastructure, JTA is presented with its own unique set of climate-related risks to its assets and operations. This chapter provides an overview of the expected changes in temperature, precipitation, wildfire and air quality, sea level rise, and population migration caused or exacerbated by climate change in Jefferson County. It summarizes the potential impacts that these changes may have on JTA facilities, operations, and services. By anticipating and planning for the impacts of climate change, JTA can improve its readiness, minimize risks, and strengthen community resilience throughout its service area.

Jefferson Transit Authority: Navigating Climate Change Impacts

How can Jefferson Transit prepare for the evolving challenges posed by climate change?

Climate change is already affecting Jefferson County and will bring ongoing challenges as global temperatures rise. Jefferson Transit Authority faces specific climate-related risks to its fleet, facilities, operations, and services. By proactively planning for these impacts, JTA can enhance its preparedness, reduce risks, and boost community resilience across its service area.

Extreme Heat

- Increased heat-related illnesses for staff and riders
- Service delays and operational disruptions
- Mechanical failures in vehicles
- Increased demand for cooling in buildings and on buses
- Changes in ridership

Wildfires and Smoke

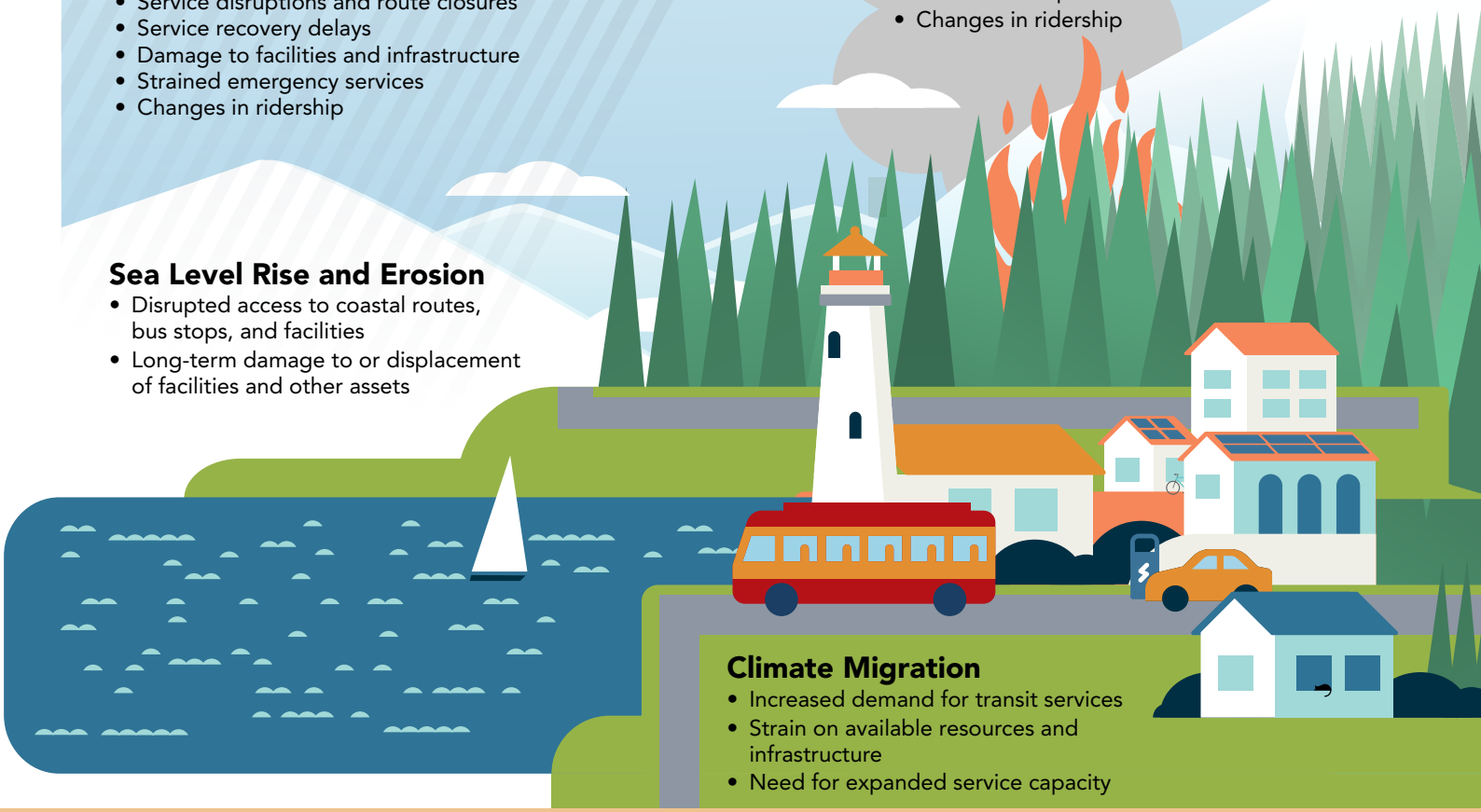
- Health risks from smoke exposure for staff and riders
- Service suspensions due to poor air quality or hazardous conditions
- Infrastructure damage from nearby fires
- Evacuation impacts
- Changes in ridership

Flooding from Extreme Precipitation and Storm Surge

- Limited access to routes, bus stops, and facilities
- Service disruptions and route closures
- Service recovery delays
- Damage to facilities and infrastructure
- Strained emergency services
- Changes in ridership

Sea Level Rise and Erosion

- Disrupted access to coastal routes, bus stops, and facilities
- Long-term damage to or displacement of facilities and other assets



Climate Migration

- Increased demand for transit services
- Strain on available resources and infrastructure
- Need for expanded service capacity

Rising Temperatures

Global temperatures have been steadily increasing due to climate change. Average temperatures in the Pacific Northwest have increased by more than 2°F since the early 20th century (Jay et al., 2023). Winters are becoming milder, summers are getting hotter, and extremely hot days are occurring more frequently. From late June to early July 2021, the Pacific Northwest endured an unprecedented heatwave, referred to as a heat dome, which shattered temperature records and had widespread effects on human health, resulting in loss of life and impacts to infrastructure, the economy, and ecosystems.

As GHG emissions continue to elevate global temperatures, climate models predict a summer temperature increase of 4 to 6°F in the Pacific Northwest by the 2050s, compared to the last half of the 20th century (Snover et al., 2013). Additionally, the number of extreme heat days is expected to rise by approximately five times during this period. This rise in temperatures is expected to increase the frequency and intensity of heat waves, decrease snowpack levels, increase drought occurrences, and heighten wildfire risks.

Impacts of Rising Temperatures on Jefferson Transit

Extreme heat presents serious health risks for both transit users and employees. Vulnerable groups—such as low-income communities, Indigenous populations, the elderly, and those with pre-existing health conditions—are likely to face the greatest challenges. This concern is especially pertinent in Jefferson County, which had a median age of 60.7 and 41.6% of the population age 65 and older in 2022—both the highest in Washington State (Washington State Office of Financial Management, 2023). Bus stops situated in areas with limited shade or cooling options heighten the vulnerability of riders. Staff working outdoors or in facilities without air conditioning are particularly at risk due to prolonged exposure to extreme heat.

Other impacts to JTA may include:

- Extreme temperatures can lead to unpredictable changes in public transit demand, with some individuals seeking cooler environments and others deterred by uncomfortable conditions.
- High temperatures may result in service delays or cancellations due to safety concerns or damage to infrastructure, such as buckling roads or malfunctioning equipment.
- Elevated temperatures can lead to higher fuel consumption, reduced electric vehicle (EV) battery efficiency, and maintenance expenses for transit vehicles, as well as increased energy use in facilities, particularly for air conditioning.
- Increased cooling demands and extreme heat could lead to more frequent power outages and rising electricity costs, affecting EV charging and other services at JTA facilities.

Changing Precipitation Patterns

Jefferson County has distinctly different precipitation patterns between its eastern and western regions which are separated by the Olympic Mountains. The western side, near the Pacific Ocean, receives significantly more rainfall—averaging about 120 inches annually in Forks—due to moisture-laden air masses (NOAA, n.d.). In contrast, the eastern region, under the rain shadow of the mountains, has a semi-arid climate with less than 20 inches of annual rainfall in Port Townsend.

Climate change is expected to alter these patterns, leading to an overall increase in average annual precipitation, with more intense and frequent heavy rainfall events (Chang et al, 2023). This shift is expected to increase flooding risks, especially in urban and low-lying areas, while also contributing to longer dry spells and drought conditions during the summer, among other impacts.

Impacts of Changing Precipitation Patterns on Jefferson Transit

Heavy rainfall can result in flooding, landslides, and erosion, disrupting transit routes and leading to service delays, cancellations, or diversions. Certain routes may become impassable due to these conditions, particularly those that traverse low-lying, flood-prone areas or unstable slopes. JTA's #1 Brinnon route is particularly vulnerable to riverine flooding because of its proximity to the Big Quilcene, Dosewallips, and Duckabush Rivers, as well as Chimacum Creek along Center Road. Additionally, the Olympic Connection route is at risk of disruption from flooding and landslides triggered by heavy rainfall. Other impacts to JTA may include:

- Increased rainfall can lead to soil erosion, weakening the foundations of infrastructure, while floodwaters can inundate low-lying areas, causing further erosion and structural damage. The facilities at Haines Place are vulnerable to flooding as they are situated within the 100-year floodplain.
- Inclement weather associated with changing precipitation patterns, such as heavy rain or icy roads, can pose safety risks for both passengers and transit operators. Wet or slippery road conditions may increase the likelihood of accidents or collisions, affecting passenger safety and the reliability of transit services.
- Extreme precipitation events may deter people from using public transit, resulting in decreased ridership and revenue for JTA. Passengers may choose alternative modes of transportation or decide to stay indoors during periods of heavy rainfall (Miao, Welch, and Sriraj, 2019).
- Transit operations may struggle to maintain schedules during heavy rainfall, which can impact overall efficiency.

Increasing Wildfire Risk and Smoky Conditions

Jefferson County has a low annual likelihood of wildfires, but during the dry summer months, it experiences high exposure due to the closeness of people and structures to flammable vegetation. Many populated areas in Jefferson County and those serviced by JTA are classified

In November 2021, severe floods in western Washington caused widespread damage and led to major road closures. U.S. Highway 101 was closed between mileposts 220 and 231, disrupting travel to Forks and other areas on the west end of Jefferson County. Additionally, heavy rainfall resulted in mudslides that shut down Highway 101 from mileposts 185 to 188, impacting JTA's Olympic Connection route. The storms left more than 11,000 residents in Jefferson County without power.

Source: WSDOT

as either Wildland-Urban Interface, where development borders wildlands, or Wildland-Urban Intermix, where development is integrated within wildland areas. It means that residents live amid substantial amounts of burnable vegetation (WA DNR, 2019).

Although the likelihood of wildfires is lower in Jefferson County than in the drier regions of central and eastern Washington, increasing temperatures and prolonged drought conditions will heighten wildfire risks, leading to more wildfires in the region. Jefferson County's average of 49 high fire danger days is expected to increase by 4-5 days between 2010-2039 and by 7-10 days from 2040-2069 (Raymond et al, 2022).

As more wildfires burn throughout the Pacific Northwest and beyond, Jefferson County can expect more frequent and severe wildfire smoke events, significantly degrading air quality and posing health risks, especially to vulnerable populations. Moreover, shifting weather patterns may facilitate the transport of smoke from distant fires to the County and elevate air pollution levels in the area.

Impacts of Increasing Wildfire Risk and Smoky Conditions on Jefferson Transit

Increased wildfire activity can lead to road closures and detours, disrupting transit schedules and operations. Since most JTA bus routes run through Wildland-Urban Interface and Wildland-Urban Intermix areas, all services are at risk of being impacted by local wildfires. Additionally, previously burned areas may experience post-fire debris flows and landslides, which further threaten roadways and transit routes. JTA's facilities at the Haines Place Transit Center and the Four Corners depot may also be vulnerable to fire damage.

Smoke from wildfires can significantly degrade air quality, affecting the health of both transit employees and passengers. Employees working outdoors or in environments with inadequate air filtration are more exposed to smoke, raising safety concerns and potentially limiting their ability to work effectively. Vulnerable populations, such as seniors and individuals with preexisting health conditions, face heightened risks when air quality deteriorates. Moreover, smoke events may deter ridership, as individuals are reluctant to wait outside for buses in unhealthy air conditions, leading to decreased public transit usage and revenue.

Sea Level Rise and Increasing Coastal Hazards

Global sea levels are rising due to warmer temperatures melting polar ice caps and expanding ocean water volume. Since 1880, average global sea levels have increased by over eight inches, with about three inches of that rise occurring in the last 25 years (Lindsey, 2023). While the exact rate of future sea level rise is dependent on many factors, scientists anticipate a more rapid increase in the coming decades. Along the Washington Coast, projections suggest sea levels could rise by 4 to 6 inches in the next 30 years (Sweet et al., 2022). Jefferson County should expect a rise of 2 to 5 feet by 2100 according to the Washington Coastal Resilience Project (Miller et al., 2018).1[1]

The impacts of sea level rise and storm surge in Jefferson County will vary based on factors such as topography, ocean dynamics, and infrastructure. The County features shorelines along the Pacific Ocean and Puget Sound characterized by low-lying marine areas, rural development, and steep bluffs that are vulnerable to significant wave action and strong currents. As sea levels rise, the County's susceptibility to coastal flooding and erosion is projected to increase in frequency, intensity, and extent. Many currently at-risk assets may face heightened exposure to coastal hazards, while areas not currently affected could become vulnerable in the future.

[1] The 2-feet to 5-feet of sea level rise by 2100 projections are based on a high-emission scenario (RCP 8.5) and 50% and 1% probabilities of exceedance. The 50% probability of exceedance scenario represents a high rate of sea level rise with a moderate probability of occurring. In this scenario, there is a 50% chance that the sea level rise will be greater than the amount identified for this probability. This scenario may be used when planning for assets that are risk-averse and where sea level rise will have substantial consequences. The 1% probability of exceedance scenario represents the highest rate of sea level rise with the lowest probability of occurring. This scenario represents the worst-case scenario for sea level rise and is typically used for extremely conservative decisions.

Impacts of Sea Level Rise and Coastal Hazards on Jefferson Transit

Experts emphasize that the preparedness of coastal communities will be critical in determining the extent of damage experienced due to sea level rise and other coastal hazards. Without proactive measures, rising sea levels are likely to accelerate erosion and heighten the risk of coastal storms causing extensive flooding and damage to infrastructure. Impacts to JTA may include:

- Flooding and erosion from sea level rise and storm surge could damage JTA infrastructure, including buildings, shelters, and parking areas, resulting in costly repairs and potential service disruptions. More frequent or permanent flooding events may necessitate infrastructure upgrades to protect assets. The area surrounding the Haines Place Park and Ride facility is currently at risk of coastal flooding (City of Port Townsend, 2022). With projected sea level rise plus an additional three feet of temporary sea level rise due to storm surge, this area is expected to experience increased exposure to coastal hazards, including temporary and permanent flooding. All JTA routes, except for the Olympic Connection route, start and end at the Haines Place Transit Center. Without further action, flooding could damage physical assets, including onsite structures and buses, and disrupt routes.
- Coastal routes may be impacted by flooding and erosion, causing delays, detours, or temporary service suspensions. Highway 101 is particularly vulnerable to flooding near Kalaloch, at the mouth of Discovery Bay, through Brinnon, and near the Duckabush River and North Triton Cove (ESA, 2023). JTA's Olympic Connection route travels along Highway 101 near Kalaloch, while the #8 Sequim route runs along Highway 101 at the mouth of Discovery Bay. The #1 Brinnon route navigates Brinnon's small roadways west of Highway 101, passing the Duckabush River and Triton Cove. State Route 20 is also at high risk of flooding near the confluence with Highway 101 at the mouth of Discovery Bay (ESA, 2023). Additionally, smaller roadways, such as the low-lying coastal stretches of Sims Way, Kearney Street, and Water Street in Port Townsend, are at risk of flooding, impacting multiple JTA routes that rely on these roads.
- Flooding may prevent JTA employees from reaching work, leading to temporary staffing shortages.
- Passengers relying on JTA services may face difficulties accessing transit due to damaged routes or infrastructure. Conversely, more people may depend on transit services during hazardous conditions, potentially leading to temporary increases in ridership.

Climate Migration

While Jefferson County is expected to face notable impacts from climate change, it is shielded from some of the worst effects compared to other regions. Global climate destabilization leading to higher temperatures and more frequent storm and wildfire events across the country and around the globe is expected to drive migration from affected areas to more stable environments like Jefferson County.

Impacts of Climate Migration on Jefferson Transit

This influx of new residents can impact the local transit system in several ways:

- An influx of people may create heightened demand for public transportation. JTA may need to expand its services and transit resources to accommodate new riders in new locations, necessitating adjustments in routes, schedules, and capacity.
- With more residents, there may be a need for improved or expanded transportation infrastructure, such as bus stops, shelters, and transit centers. JTA will need to collaborate with local government and planning agencies to ensure adequate facilities are in place.
- Increased population density could lead to greater transportation-related pressures, such as traffic congestion. JTA may need to consider alternative transit solutions to mitigate these impacts, including promoting public transit over single-occupancy vehicles.

4. Climate Action Roadmap

By combining innovative and proven approaches to climate action, this roadmap—comprising goals, strategies, and actions—will enable meaningful progress in addressing immediate climate challenges while laying a strong foundation for sustained action in the future.

This chapter presents a roadmap for JTA to address the pressing challenges of climate change over the next decade. It outlines specific, measurable goals that align with the agency's vision for a climate-ready JTA for three focus areas: GHG emissions reduction, climate-resilience building, and improved governance for climate action. It also highlights thematic strategies to achieve these goals, and details concrete actions to implement those strategies. The roadmap focuses on three spheres of influence, including the JTA team, JTA infrastructure, assets, and operations, and the community.

Appendix C presents key performance indicators that JTA can use to track progress toward the goals of the CAP.

Reduce Greenhouse Gas Emissions

Human activities, particularly fossil fuel burning, release GHGs into earth's atmosphere. GHGs let the sun's light shine through to Earth's surface, but they trap the heat that reflects up to the atmosphere. Since the mid-18th century, the scale of human-caused GHG emissions has surged, leading to a significant increase in average global temperatures and triggering long-term shifts in the average weather patterns that define local, regional, and global climates. These shifts are referred to collectively as "climate change" and have far-reaching impacts around the globe.

The transportation sector is responsible for 39% of all GHG emissions in Washington State, with approximately 40% of those emissions coming from gasoline combusted in single-occupancy vehicles (Waterman-Hoey, 2022). In Jefferson County, transportation accounts for an even larger share, comprising 66% of emissions (Jefferson County Climate Action Committee, 2020). JTA recognizes that reducing emissions in this sector is essential for meeting both statewide and local climate goals, as well as for ensuring the health and well-being of its employees, riders, and the broader community.

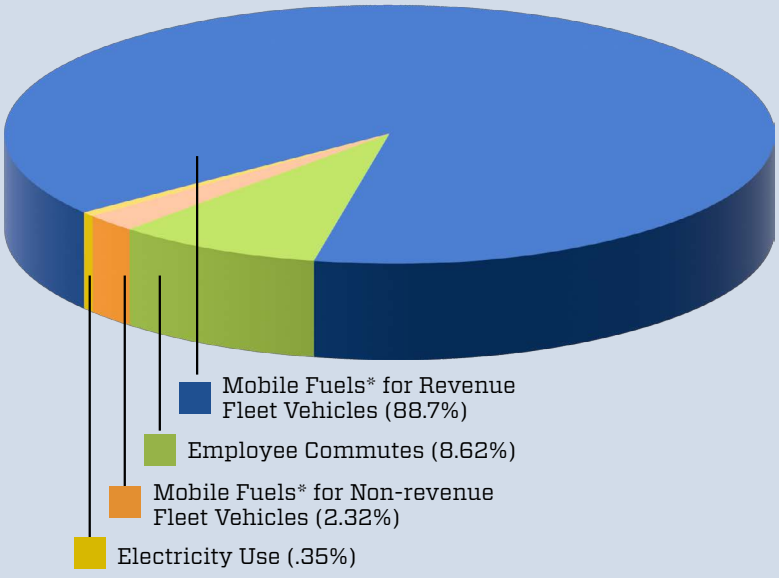
JTA internal operations emitted 1,134.13 metric tons of CO_2 equivalent (MT CO_2e), the equivalent quantity of GHGs emitted by 270 gasoline-powered passenger vehicles driven for one year. This accounts for just 0.62% of countywide emissions. While reducing JTA's

Jefferson Transit Authority's Greenhouse Gas Emissions

As part of its climate action planning process, JTA conducted a GHG emissions inventory for operations in 2022. This inventory helped the agency understand the relative proportion of its emission sources and the most significant opportunities for emissions reduction. It also provided a baseline that can be used as a point of comparison for future inventories so JTA can measure progress towards its climate action goals. The 2022 inventory measured emissions from various sources including fleet vehicle fuel consumption, refrigerant use, electricity consumption at JTA facilities, and fuel used for employee commutes.

In 2022, JTA's internal operations generated a total of 1,134.13 metric tons of CO_2 equivalent (MT CO_2e), roughly the same as the emissions from 270 gasoline-powered cars driven for a year (see Figure 1). Most of these emissions—88.70%—came from fuels used in revenue fleet vehicles (those that transport passengers). Employee commutes were the second largest source, accounting for 8.62% of total emissions, followed by non-revenue fleet vehicles at 2.32%, and electricity use at 0.35%. Emissions from electricity are low because Jefferson County Public Utility District, JTA's electricity provider, sources its power from the Bonneville Power Administration, which used a clean energy mix of about 84% hydropower and 11% nuclear, as of 2022. Additional details about emissions can be found in the 2022 Jefferson Transit Authority GHG Emissions Inventory.

Jefferson Transit Authority 2022 Greenhouse Gas Emissions 1134.13 MT CO_2e



*gasoline, diesel, and biodiesel

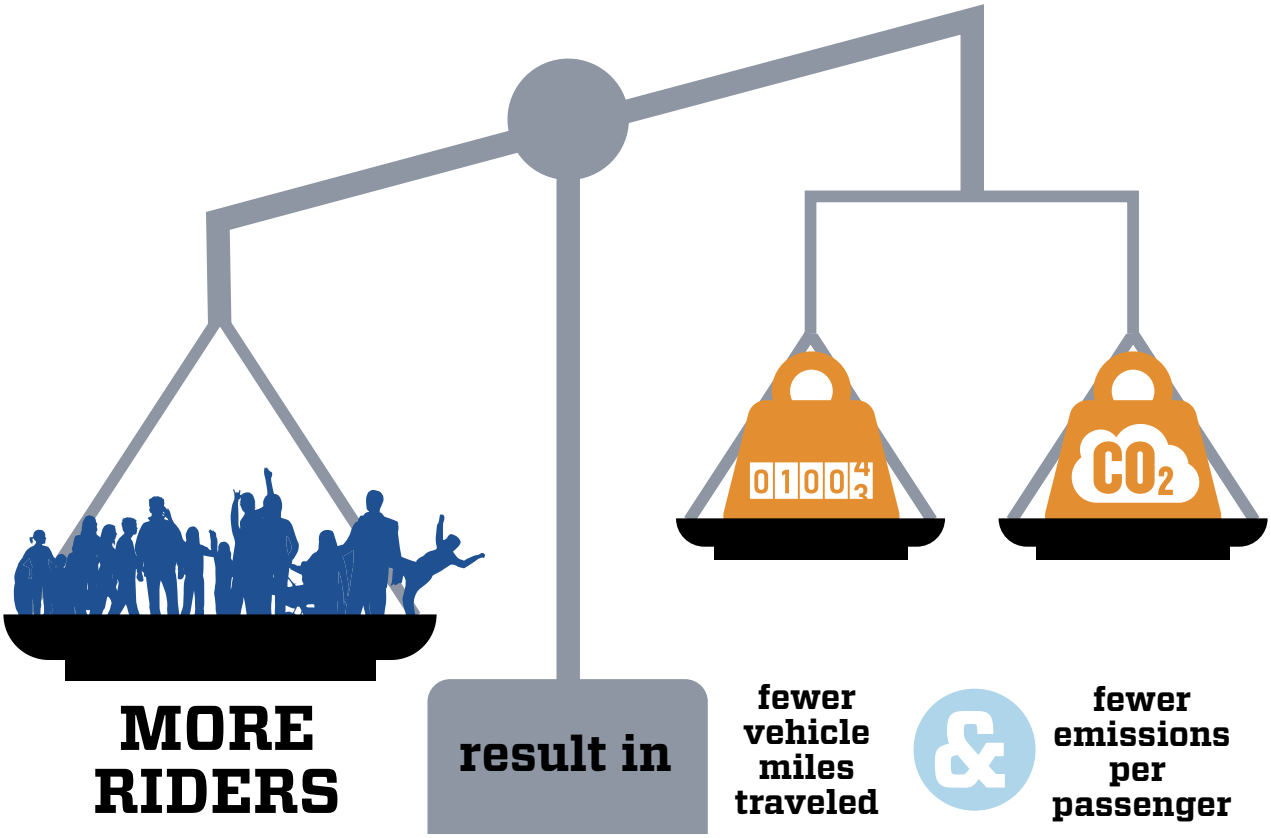
Figure 1. Emissions from Jefferson Transit Authority operations in 2022

JTA aims to reduce its operational GHG emissions by 75% below 2022 levels by 2035 and by 95% below those levels by 2050

own operational emissions will have a relatively small impact on countywide emissions, the agency can play a significant role in reducing transportation emissions across the County by providing lower-emission transportation options to residents and travelers, promoting ridership, and setting a positive example for other rural transit agencies.

JTA aims to reduce its operational GHG emissions—referring to emissions from day-to-day activities and operations— by 75% below 2022 levels by 2035 and by 95% below those levels by 2050. These targets consider the anticipated effects of two key Washington State emissions reduction laws: the Washington Clean Fuel Standard (CFS) and the Washington Clean Energy Transformation Act (CETA). The CFS requires fuel suppliers to gradually lower the carbon intensity of transportation fuels, while CETA sets milestones for electric utilities, targeting GHG neutrality by 2030 and 100% renewable or non-emitting electricity by 2045. To meet its target, JTA will need to significantly cut emissions from its fleet vehicles, as well as reduce emissions from buildings, electricity use, and employee commutes.

Additionally, JTA is committed to supporting Jefferson County's emission reduction goals by reducing vehicle miles traveled (VMT) across the County, primarily by promoting increased ridership of low-emission transit and the use of other multi-modal transportation options.



JTA can help reduce transportation emissions across the County by offering low-emission transportation options, promoting ridership, and setting a positive example for other rural transit agencies.

Goal 1: Support countywide efforts to reduce transportation emissions.

Transit plays an important role in reducing GHG emissions. While JTA's operations do produce emissions, they account for only a small fraction of the total emissions in Jefferson County. Still, the agency can offset operational emissions and support countywide emission reduction goals by offering lower-emission transportation options and encouraging more people to use public transit instead of single-occupancy vehicles. In 2022, JTA services helped avoid an estimated 244.71 MT CO_2e within the county—equivalent to 58.2 gasoline-powered passenger vehicles driven for one year—by reducing the need for trips in single-occupancy vehicles. By increasing ridership and reducing the emissions released by its services, JTA can amplify this impact.

Strategy 1.1: Improve the convenience and accessibility of transit in Jefferson County.

Actions	Target Completion Timeline		
	2025	2026-2030	2031-2035
Action 1.1.1: Optimize routes and schedules to better meet community needs. Optimizing routes and schedules helps reduce unnecessary fuel use, improve efficiency, and potentially increase ridership, all of which contribute to lower emissions. Optimization will be informed by the results of the Comprehensive Operational Analysis and Fleet Electrification Strategy (see *Action 2.2.1*). Resilience Co-Benefit		✓	
Action 1.1.2: Evaluate the feasibility of providing summer service to popular destinations in Jefferson County. Based on the results of this evaluation, determine whether to pilot or introduce the service. Offering summer service to popular destinations, such as Fort Worden, can encourage more riders to choose transit for their trip over single-occupancy vehicles.		✓	
Action 1.1.3: Evaluate the feasibility of providing zero or low-emissions on-demand service. Based on the results of this evaluation, determine whether to pilot or introduce the service. On-demand service can provide flexible and responsive transit options for rural community members who lack access to regular bus routes and do not qualify for paratransit. This service would be especially beneficial during adverse weather or other climate related disruptions when regular bus routes are suspended. Resilience Co-Benefit		✓	

Actions	Target Completion Timeline		
	2025	2026-2030	2031-2035
Action 1.1.4: Implement a Computer-Aided Dispatch/Automatic Vehicle Location (CAD/AVL) system to provide riders with real-time bus tracking and arrival time information. This tool would offer passengers accurate, real-time information about bus schedules and arrival times. Reducing wait times and making transit more accessible and convenient will make it easier for people to choose the bus over other transportation options.  Resilience Co-Benefit	✓	✓	
Action 1.1.5: Create a Transit Amenities Improvement Program for enhancing amenities and accessibility features at transit stops. Seek external funding to acquire and install these improvements. Enhancing accessibility features at transit stops, including ramps, shelters, seating, and lighting, can create a more welcoming and comfortable environment for all passengers. Improved facilities will not only make transit more accessible for individuals with disabilities but also encourage more people to use the service by enhancing overall safety and convenience. Additionally, lighting and shelters at transit stops offer safety and protection from the elements, ensuring passengers can access transit services safely and comfortably, even during challenging conditions expected with climate change. Completing this action may require collaboration with landowners.  Resilience Co-Benefit		✓	✓
Action 1.1.6: Maintain zero-fare policy. JTA implemented a zero-fare policy in 2022. Maintaining this policy can help increase ridership by removing financial barriers, making transit more accessible and appealing to a broader range of passengers.	✓	✓	✓

Strategy 1.2: Support low-carbon multimodal transportation integration efforts throughout Jefferson County.

Actions	Target Completion Timeline		
	2025	2026-2030	2031-2035
Action 1.2.1: Advocate for local and Washington State policies and projects that promote active transportation (e.g., walking, biking, etc.). Policies that promote active transportation can help make activities like walking and biking more appealing, which can reduce the number of single-occupancy vehicle trips. Active transportation can also be paired with riding the bus to make more multi-modal trips possible.  Resilience Co-Benefit	✓	✓	✓
Action 1.2.2: Secure funding for and install bicycle amenities at Haines Place and Four Corners. Installing amenities, such as bike racks, shelters, e-bike charging stations, and repair stations, can encourage more people to choose biking over driving.		✓	✓
Action 1.2.3: Collaborate with other public agencies and partners to research the feasibility of bringing bike share to Port Townsend. A bike share system can provide a convenient transportation alternative to single-occupancy vehicle use, especially for short trips around Port Townsend. While JTA would not be directly responsible for such a system, supporting this effort could help encourage more people to choose biking over driving.		✓	
Action 1.2.4: Work with partners to identify, establish, and advertise park-and-ride facilities at strategic locations along major routes to encourage transit use among those living farther from bus stops. Establishing park-and-ride facilities in partnership with Jefferson County, Washington State Department of Transportation (WSDOT), and other partners can make it easier for commuters who do not live on a bus route to use public transit for part of their commute instead of single-occupancy vehicles.  Resilience Co-Benefit		✓	✓
Action 1.2.5: Seek funding to install two or more publicly available EV chargers at Haines Place. Expand charging as demand grows. Installing publicly available EV chargers can promote the use of electric vehicles, which are a low-carbon alternative to gasoline-powered vehicles. As of 2024, JTA has two dual-head chargers available for public use at Four Corners.		✓	✓

Actions	Target Completion Timeline		
	2025	2026-2030	2031-2035
Action 1.2.6: Continue to collaborate with city and county planners, public works officials, and other stakeholders to ensure that transit-oriented development, accessible pedestrian and bicycle infrastructure, bus stops and pull outs, and connections to transit are included in development projects and regional plans. This will also include planning for transit infrastructure to accommodate the anticipated increase in residents within Urban Growth Areas (UGAs) in Jefferson County. Working with planners and public works officials to integrate transit-oriented development and active transportation infrastructure ensures that communities are designed for sustainable transportation options, which helps reduce reliance on single-occupancy vehicles.  Resilience Co-Benefit	✓	✓	✓

Strategy 1.3: Expand community engagement initiatives to increase bus ridership and reduce reliance on single-occupancy vehicles.

Actions	Target Completion Timeline		
	2025	2026-2030	2031-2035
Action 1.3.1: Partner with tourism and local government to promote the use of bus service for transport to festivals and events on existing routes. Promoting public transit as an option for accessing local events, such as the Wooden Boat Festival in Port Townsend, can increase ridership while decreasing traffic, emissions, air pollution, and parking congestion. A concerted marketing campaign, implemented in coordination with partners, could significantly increase the utilization of transit services to events.	✓	✓	✓
Action 1.3.2: Host events and engagements to encourage people to choose transit for their transportation needs. Interactive activities like a JTA scavenger hunt or travel training program can help people learn about the benefits and technicalities of using transit, making them feel more comfortable and likely to choose transit for their travel needs.	✓	✓	
Action 1.3.3: Relaunch the vanpool program. Partner with large employers to boost employee participation. Providing and promoting convenient transportation options for employees can decrease single-occupancy vehicle trips and increase awareness and use of transit services. Working with employers to design an employee transit or vanpool program can increase participation.	✓	✓	
Action 1.3.4: Continue to participate in community events to promote the benefits of transit services. JTA employees promote transit services at many events each year, including the Moving in the Right Direction Transportation Conference, Jefferson County farmers markets, the County Fair, and the All-County Picnic. By continuing to participate in these events, as well as other events such as local music festivals and the Wooden Boat Festival, JTA can increase community awareness about and comfort with its services and encourage ridership.	✓	✓	✓
Action 1.3.5: Launch a marketing campaign to promote the benefits, safety, and convenience of public transit. By highlighting the benefits of public transit—such as environmental, equity, safety, and convenience benefits—a marketing campaign can shift perceptions and encourage more people to choose transit over driving. Increased awareness of safety measures and positive testimonials from local figures can further build trust and interest, ultimately leading to higher ridership.	✓		

Goal 2: Reduce fleet vehicle emissions by 85% from 2022 levels by 2035 and by 95% from 2022 levels by 2050.

JTA's fleet is its largest source of operational emissions. The fleet also presents the most substantial opportunity for JTA to lower its emissions. Reducing emissions from revenue and non-revenue fleet vehicles by at least 85% from 2022 levels by 2035 and 95% by 2050 will allow JTA to meet its overall emission reduction targets.

2022
Purchased two battery-electric Ford Mach-E vehicles for administrative and staff use, removing two aging gas-powered vehicles from regular use.

2022
Ordered first battery-electric bus (BEB) for fixed-route fleet.

2023
First BEB went into operation.

2024
Ordered third BEB.

2023
Ordered second BEB.

2023
Installed electrical transformer to power charging equipment and infrastructure in bus yard. Chargers included one bus charger, two EV chargers, and two dual-head EV chargers for public use.

2024
Set a target to achieve a reduction of operational GHG emissions of at least 75% from 2022 levels by 2035 in the Climate Action Plan.

2025 or early 2026 (planned)
Second and third BEB expected to be in service.

JTA has already begun its fleet electrification journey. The timeline highlights key milestones and achievements to date.

Strategy 2.1: Optimize JTA's fleet size and composition.

Actions	Target Completion Timeline		
	2025	2026-2030	2031-2035
Action 2.1.1: Adjust fleet composition based on the Comprehensive Operational Analysis. Aligning the fleet composition, including vehicle types and quantities, with operational needs identified in the Comprehensive Operational Analysis can help ensure that the most efficient vehicles are being used for specific routes, reducing unnecessary emissions and increasing overall fleet efficiency.	✓	✓	✓
Action 2.1.2: Continue to monitor fleet performance and service efficiency over time. Monitoring fleet performance and service efficiency can help identify areas for improved performance.	✓	✓	✓

Strategy 2.2: Transition JTA's non-revenue and revenue fleet to electric vehicles.

Actions	Target Completion Timeline		
	2025	2026-2030	2031-2035
Action 2.2.1: Develop a phased Fleet Electrification Strategy to replace diesel buses with battery-electric buses (BEBs). Transitioning to BEBs can significantly reduce tailpipe emissions and reliance on fossil fuels, leading to a cleaner, more sustainable fleet. A full transition will take time and will require significant funding and the advancement of BEB technology. The Fleet Electrification Strategy will outline a phased transition which should include a replacement schedule, a charging strategy, and other financial and operational considerations. It will focus on replacing diesel buses and may consider other fleet vehicles.  **See *Appendix D* for more information about the Fleet Electrification Strategy.**	✓		
Action 2.2.2: Secure funding and implement the Fleet Electrification Strategy. Funding will enable the procurement of BEBs and necessary charging infrastructure, accelerating the fleet electrification process.	✓	✓	✓
Action 2.2.3: Join the Washington State Transportation Association consortium to aggregate clean fuels credits and receive income for credits. Clean fuels credits provide a financial incentive for electrification and can help reduce the costs of operating BEBs.	✓	✓	

Actions	Target Completion Timeline		
	2025	2026-2030	2031-2035
Action 2.2.4: Collaborate with JPUD to explore a transit-specific or a fleet-specific rate for electricity. Securing favorable rates for electricity can lower operational costs for BEBs, making it more feasible to expand the electric fleet.		✓	
Action 2.2.5: Document and implement best practices for BEB operation based on initial experience and peer learning from other transit agencies. Learning from other agencies that are further along in the fleet electrification process and adopting best practices can help improve BEB performance, which contributes to emission reduction.	✓		
Action 2.2.6: Develop procedures to integrate BEB specific scheduling variables into processes for setting driver shifts and bus schedules. Operational efficiency and planning for a fleet primarily made up of BEBs will differ from that of a fleet mostly consisting of diesel buses. For instance, charging locations, timing, and battery levels will need careful consideration. Creating scheduling procedures specifically for BEBs can help reduce downtime during service hours and allow for near one to one replacement.		✓	
Action 2.2.7: Use less carbon-intensive fuels for longer routes where electrification is not yet feasible. As of 2024, JTA's fleet is mainly powered by biodiesel (B5), diesel, and gasoline. Using lower-carbon fuels, such as renewable diesel, can help reduce GHG emissions from the existing fleet before vehicles are replaced with BEB or other zero- or low-carbon options.	✓	✓	✓

Strategy 2.3: Expand charging infrastructure to support the electrification of fleet vehicles.

Actions	Target Completion Timeline		
	2025	2026-2030	2031-2035
Action 2.3.1: Work with JPUD to secure US Department of Agriculture Rural Energy Savings Program (RESP) low interest loan funding for charging infrastructure purchases. Securing RESP funding will enable JTA to invest in essential charging infrastructure, supporting the transition to BEBs and reducing emissions from the fleet.		✓	
Action 2.3.2: Expand charging infrastructure at the Four Corners bus yard. Increasing the bus yard charging capacity can help ensure that buses can be charged effectively and reliably.		✓	
Action 2.3.3: Continue to expand charging infrastructure at key JTA locations as outlined in the Fleet Electrification Strategy (see *Action 2.2.1)*. Expanding charging infrastructure at strategic locations on-route can help JTA operate BEBs for a greater percentage of service hours.		✓	✓
Action 2.3.4: Incorporate on-route charging infrastructure into the redesign of the Haines Place Transit Center and all future new facility designs. On-route charging allows BEBs to stay in service for longer periods, leading to greater operational efficiency and reduced emissions. Incorporating infrastructure during the redesign will ultimately save money, compared to expanding infrastructure later on.	✓	✓	
Action 2.3.5: Implement load management software to mitigate demand charges. Using load management software can reduce costs from peak demand charges (the maximum amount of power being used at a site), which will help lower operational costs for BEBs.		✓	

Strategy 2.4: Prepare JTA staff for fleet transition.

Actions	Target Completion Timeline		
	2025	2026-2030	2031-2035
Action 2.4.1: Develop and deliver a zero-emissions vehicle safety and process training for maintenance staff and operators. Training maintenance staff and operators on zero-emissions vehicles will ensure they are equipped to handle these vehicles safely and effectively, leading to improved vehicle performance and reduced downtime. As possible, work with other local transit agencies to utilize existing training materials and resources.			
Action 2.4.2: Create and implement a driver efficiency training program for zero-emissions vehicle operators. Implementing a driver efficiency training program can empower operators to maximize the performance of zero-emission vehicles, optimizing energy use and enhancing operational efficiency.			

Goal 3: Achieve and maintain net-zero GHG emissions from JTA-controlled buildings and energy supply by 2045.

JTA buildings and energy supply accounted for just 0.35% of JTA's overall operational emissions in 2022. This is largely due to JPUD, JTA's energy supplier, sourcing its electricity from the Bonneville Power Administration (BPA) which provided a low-carbon energy source as of the time this plan was developed. The per-unit emissions for BPA's power generation are significantly lower than the average per-unit electricity generation emissions for both Washington State and the United States. Additionally, JTA does not utilize fossil fuel-powered systems for heating and cooling in its buildings.

Achieving net-zero GHG emissions from JTA-controlled buildings and energy supply by 2045 hinges on several interconnected strategies, including the continued reliance on electricity for energy supply, prioritizing energy efficiency in building operations, sourcing low- or zero-emissions electricity, and investing in the installation of on-site renewable energy systems. By focusing on this multi-pronged approach, JTA can attain net-zero emissions and maintain this standard moving forward.

This goal assumes that JPUD will continue to purchase power from BPA and that BPA will achieve an electricity supply free of GHG emissions by 2045, in compliance with Washington's Clean Energy Transformation Act (CETA) (SB 5116, 2019).

Strategy 3.1: Increase energy efficiency of existing JTA facilities and infrastructure.

Actions	Target Completion Timeline		
	2025	2026-2030	2031-2035
Action 3.1.1: Conduct a lighting inventory across JTA buildings and parking lots. This inventory will identify outdated or inefficient lighting, providing a clear basis for targeted upgrades that can reduce energy consumption.	✓		
Action 3.1.2: Develop a plan for energy-efficient lighting upgrades and make upgrades as funding and labor permit. Implementing a structured plan for lighting upgrades will ensure that energy-efficient lighting solutions are prioritized and executed, leading to immediate reductions in energy use and costs.	✓	✓	
Action 3.1.3: Perform an energy audit at 63 Four Corners. Conducting an energy audit will reveal inefficiencies and opportunities for improvement, guiding JTA in making informed decisions to increase energy efficiency at the facility.	✓		

Actions	Target Completion Timeline		
	2025	2026-2030	2031-2035
Action 3.1.4: Based on the findings of the energy audit at 63 Four Corners, seek funding for and complete weatherization updates. Weatherization updates, such as building envelope upgrades, improved insulation, window and door upgrades, and roof improvements, will improve the building's insulation and reduce energy loss, leading to decreased heating and cooling demands and increasing overall energy efficiency.  Resilience Co-Benefit		✓	
Action 3.1.5: Inventory and replace less-efficient heating, ventilation, and air conditioning (HVAC) and domestic hot water (DHW) equipment at 63 Four Corners with high-efficiency electric alternatives at the end of its useful lifetime. Replacing outdated HVAC and DHW systems with high-efficiency electric alternatives will significantly lower energy consumption and operational costs while improving the overall comfort of the facility.  Resilience Co-Benefit	✓	✓	✓

Strategy 3.2: Prioritize energy efficiency and sustainability in new construction.

Actions	Target Completion Timeline		
	2025	2026-2030	2031-2035
Action 3.2.1: Ensure that all future buildings use electric systems and appliances and are energy-efficient, climate-resilient, and net-zero ready. Prioritizing electrification and efficiency and promoting the use of low-emission, sustainably sourced materials, including recycled content and materials with a lower carbon footprint, in JTA's design process and construction can help reduce both direct and embodied emissions. Additionally, incorporating flood- or fire-resistant design standards, as examples, can build the resilience of new construction.  Resilience Co-Benefit	✓	✓	✓
Action 3.2.2: Incorporate smart technologies that optimize energy usage in new buildings. Incorporating smart technologies that optimize energy usage in new buildings—like programmable thermostats, energy monitoring systems, and automated lighting controls—will significantly reduce energy consumption. Prioritizing these options through JTA's design process can facilitate the implementation of this action.  Resilience Co-Benefit	✓	✓	✓

Strategy 3.3: Commit to low-carbon energy sourcing, generation, and utilization.

Actions	Target Completion Timeline		
	2025	2026-2030	2031-2035
Action 3.3.1: Continue to purchase low-emissions electricity from JPUD. By consistently sourcing low-emission electricity, JTA can keep emissions related to buildings and electricity use to a minimum.	✓	✓	✓
Action 3.3.2: Research and evaluate renewable energy generation and storage solutions at Haines Place and 63 Four Corners. Installing renewable energy generating systems such as solar panels will generate clean energy on-site, reducing reliance on the blended energy mix that utilities use to generate electricity. Additionally, incorporating battery storage will allow JTA to store excess energy for use during peak demand periods. Resilience Co-Benefit		✓	
Action 3.3.3: Continuously evaluate new technologies for energy supply and storage. Energy technologies, incentives, and funding opportunities for energy supply and storage solutions are evolving rapidly. While certain solutions for energy supply and storage may currently be out of reach or impractical for JTA, this is likely to change in the near future. By regularly assessing emerging technologies, JTA can be prepared to adopt these solutions as they become feasible.	✓	✓	✓

Goal 4: Reduce GHG emissions associated with JTA employee commutes by 30% from 2022 levels by 2035 and by 80% from 2022 levels by 2050.

GHG emissions associated with employee commutes accounted for 8.6% of JTA's overall operational emissions in 2022. While JTA can promote and incentivize low emissions commuting practices, the ability of employees to commute varies based on many factors that are outside of JTA's control, such as where employees live, transportation schedules and infrastructure, costs, and employee physical ability. Moreover, many employees are transit operators who are responsible for starting up or closing transit service, so they are not able to take the bus to and from work.

Recognizing this complexity, JTA is committed to exploring solutions to encourage more low-emissions commutes while continuing to support the workforce.

Strategy 4.1: Promote the use of low emissions commuting options among employees.

Actions	Target Completion Timeline		
	2025	2026-2030	2031-2035
Action 4.1.1: Conduct an employee commute survey every three years to understand commute patterns and quantify emissions. This survey will offer insights into employee commuting behaviors, motivations, and challenges, allowing JTA to develop targeted strategies to reduce emissions from commutes.		✓	✓
Action 4.1.2: Develop and implement an incentives program to encourage employees to use low-carbon transit options. Ensure effective communication of these incentives to maximize employee engagement and benefit. By providing incentives and support for low-carbon commuting options—such as transit, carpooling, biking, walking, and electric vehicles—JTA can encourage employees to opt for low-emission travel methods. This may include offering flexible work hours aligned with public transit schedules.		✓	
Action 4.1.3: Expand EV charging infrastructure available to staff at 63 Four Corners. Increasing the availability of EV charging stations will make it easier for employees to choose EVs for their commutes. Pairing this action with incentives (See *Action 4.1.2*) can further support employee transition to EVs.		✓	

Build Resilience to Climate Impacts

JTA understands the importance of proactively planning for, adapting to, and responding to the impacts of climate change. The goals, strategies, and actions presented in this chapter are guided by regional climate projections, insights from the high-level Climate Impacts Summary (see *Chapter 3*), and feedback from JTA staff, stakeholders, and the community. JTA is committed to enhancing the resilience of its infrastructure, assets, and operations to provide reliable, comfortable, and safe service throughout Jefferson County. Additionally, JTA is focused on supporting the resilience of staff and riders, while contributing to countywide efforts to mitigate risks and prepare for emergencies.

Goal 5: Develop a resilient transit system that is adaptable to current and future climate challenges.

JTA is committed to proactively preparing for, responding to, and adapting to climate impacts within its operations. This commitment includes making the transit system stronger, ensuring that it can withstand the challenges posed by a changing climate, while still providing the community with reliable, comfortable, and safe transit services. JTA aims to provide a transit network that not only meets today's needs but is also ready to thrive in the face of future climate uncertainties.

Strategy 5.1: Strengthen operational readiness for climate-related disruptions and emergencies.

Actions	Target Completion Timeline		
	2025	2026-2030	2031-2035
Action 5.1.1: Develop and annually update a Service and Business Continuity Plan to build preparedness for and continuity of service during severe weather events and other disruptions. This plan should detail alternative transit services and routes as well as communication protocols. Establishing alternative services and communication protocols for severe weather events enhances JTA's resilience by ensuring public transportation remains accessible even when typical routes are disrupted. Implementing flexible options such as temporary routes or smaller vehicles can allow passengers to use transit and reach essential destinations safely. The plan should prioritize transportation to medical facilities and temporary services such as cooling, warming, and clean air centers.	✓		
Action 5.1.2: Conduct an annual drill for department heads and supervisors to practice the responses outlined in the Service and Business Continuity Plan. Annual drills help reinforce the preparedness of department heads and supervisors, ensuring that they understand their roles and responsibilities in executing the Service and Business Continuity Plan.		✓	✓

Actions	Target Completion Timeline		
	2025	2026-2030	2031-2035
Action 5.1.3: Review the Service and Business Continuity Plan with operators annually during All Staff training. Annual reviews of the Service and Business Continuity Plan can help familiarize operators with protocols for responding to climate-related disruptions before they occur.		✓	✓
Action 5.1.4: Develop and implement a process for tracking and evaluating service disruptions due to climate change. This may involve conducting after-action reviews to assess the effectiveness of JTA's responses and identify areas for improvement. By integrating lessons learned into future drills and overall planning, JTA can monitor disruptions, analyze their impacts, and adapt operations to better prepare for future climate events.		✓	✓
Action 5.1.5: Each quarter, review primary and alternate transit routes to identify service disruptions due to weather, flooding, landslides, and planned construction. Identify changes or detours to improve service continuity. JTA can proactively mitigate potential disruptions by regularly reviewing transit routes.		✓	✓
Action 5.1.6: Evaluate opportunities to provide on-demand services for transit-reliant individuals during climate-related disruptions, as conditions and operations allow. Prepare recommendations for addressing this need. Some individuals rely on public transit to reach essential services like healthcare and food, making them more vulnerable during service disruptions. On-demand services can help these populations maintain access to critical services, as well as provide pathways to temporary facilities like cooling, warming, and clean air centers.	✓	✓	
Action 5.1.7: Develop and implement an outreach strategy to communicate pertinent transit information to the community, including the snow schedule and any additional service changes. Timely communication about changes in transit schedules and routes helps individuals adapt their transportation plans when there are service disruptions.		✓	
Action 5.1.8: Provide annual training on best practices for vehicle operation during severe weather. Transit operators need to have the skills to operate vehicles safely in challenging conditions. Annual training can provide an opportunity for operators to practice necessary skills in a safe environment (e.g., the bus yard).		✓	✓

Strategy 5.2: Strengthen internal communication around disruptions and emergencies related to climate impacts.

Actions	Target Completion Timeline		
	2025	2026-2030	2031-2035
Action 5.2.1: Improve communication protocols for JTA staff during severe weather and emergencies, including a driver recall procedure and methods to communicate with transit operators when cell service is down. Clear internal communication is essential for coordinating during severe weather events and other disruptions. Implementing a driver recall procedure and finding alternative ways to contact operators when cell service is down, will help JTA maintain and adapt function during climate-related disruptions, emergencies, and evacuations. Changes to communication protocols should be documented, reviewed each year, and updated as necessary.		✓	✓
Action 5.2.2: Map driver residences and establish a communication strategy to connect drivers with emergency communication points if cell service is unavailable. Update annually. This action supports Action 5.2.1 (see above) by enabling JTA to assess transit operator availability during emergencies, which is essential for determining the level of service that can be provided.		✓	✓

Strategy 5.3: Prioritize the safety and well-being of staff working during severe weather and other climate-related events.

Actions	Target Completion Timeline		
	2025	2026-2030	2031-2035
Action 5.3.1: Implement Washington State safety protocols for staff working outdoors or in non-climate-controlled areas during extreme temperatures or periods of poor air quality. Review related best practices annually and communicate updates to staff. These protocols help minimize risks associated with heat, cold, and compromised air quality. By reviewing best practices annually and communicating updates, JTA can help maintain a safe working environment. This supports staff well-being and smooth transit operations during extreme weather events and other climate-related disruptions.	✓	✓	✓
Action 5.3.2: Provide appropriate personal protective equipment to staff to protect against climate-related hazards. JTA can help protect staff health and well-being while maintaining operational readiness during challenging conditions by providing employees with the equipment they need to stay safe. This includes supplying masks specifically designed to filter out smoke. Regular training on the proper use of this equipment will further support staff safety and preparedness.	✓	✓	✓

Strategy 5.4: Equip JTA's fleet to withstand climate change impacts.

Actions	Target Completion Timeline		
	2025	2026-2030	2031-2035
Action 5.4.1: Integrate winter preparation into annual maintenance protocols for all SUVs. Integrating winter preparation into annual maintenance protocols ensures that all SUVs are ready for winter conditions. Equipping vehicles with snow tires improves traction and safety, while stocking essential supplies like blankets, ice scrapers, and shovels helps staff respond effectively to winter weather challenges. Scheduling this check before the winter season guarantees that all necessary preparations are in place prior to adverse weather.	✓		
Action 5.4.2: On an annual basis, ensure that all revenue and non-revenue fleet vehicles are equipped with effective cooling and heating. Where feasible, equip vehicles with improved air filtration. Although maintaining a stable temperature and good air quality can be challenging with frequent door openings during adverse conditions, equipping vehicles with effective heating, cooling, and improved air filtration where possible is a crucial first step in helping protect the well-being of everyone on board.	✓		
Action 5.4.3: Establish operations procedure for snow/ice response for EV charging infrastructure. Snow and ice can obstruct charging stations, reduce charge efficiency, and potentially damage equipment. JTA can implement regular inspections and snow and ice removal around charging sites to ensure they remain operational during winter weather. Additionally, using weather-resistant materials and protective coverings for chargers can help minimize disruptions.		✓	
Action 5.4.4: Equip all buses, especially those serving rural routes, with an emergency kit and enhanced first aid kit. This will provide essential resources for staff and passengers in case of unexpected situations related to climate-hazards or other disruptions. By having these kits readily available, JTA can improve safety and response times.	✓		

Strategy 5.5: Ensure a redundant and reliable power supply at key JTA facilities.

Actions	Target Completion Timeline		
	2025	2026-2030	2031-2035
Action 5.5.1: Investigate the possibility of maintaining higher fuel levels in storage tanks during the winter to avoid shortages during emergencies. Maintaining higher fuel levels in storage tanks would reduce the risk of shortages during winter months in case JTA is unable to receive fuel deliveries for an extended period.	✓		
Action 5.5.2: Develop and implement practices to conserve generator fuel during a power outage. Conserving fuel makes it possible to run generators for a longer amount of time, allowing JTA to power key operations for an extended period.		✓	
Action 5.5.3: Assess and enhance security measures at the Four Corners bus depot and all future facilities. Safeguarding fuel resources and equipment from potential threats allows JTA to minimize disruptions to fuel supply and power availability. This may include upgrading gate locks and adding security features to the bus depot.		✓	

Goal 6: Promote resilient facilities and infrastructure that can endure both current and future climate impacts.

JTA aims to enhance its facilities and infrastructure to ensure they can withstand the effects of both current and future climate challenges. By prioritizing resilience in upgrades, design, and construction, JTA will create structures that not only meet today's needs but are also equipped to handle extreme weather events and other climate-related disruptions. This focus on resilience will help protect JTA's assets, ensure the safety of the community, and maintain essential services in the face of changing environmental conditions.

Strategy 6.1: Upgrade existing facilities to withstand climate impacts.

Actions	Target Completion Timeline		
	2025	2026-2030	2031-2035
Action 6.1.1: Work with partners to complete a sea level rise and flood risk vulnerability assessment for Haines Place and surrounding infrastructure. By collaborating with key partners, such as Jefferson County, the Port of Port Townsend, and the City of Port Townsend to identify specific risks and vulnerabilities, JTA can develop a targeted response strategy that outlines necessary adaptations and mitigations. This will help ensure that infrastructure and services in Haines Place are better prepared for potential flooding and sea level rise before a damaging event occurs. The outcomes of ongoing efforts by the Port and the City regarding sea level rise protection at Boat Haven will significantly influence the effectiveness of these measures, so coordination with these entities will be essential. Refer to the Port Townsend Sea Level Rise Report for additional information (City of Port Townsend, 2022).		✓	
Action 6.1.2: Develop a plan to elevate electrical, mechanical, and IT equipment in flood-prone areas based on the sea level rise and flood risk vulnerability assessment. By proactively relocating critical systems above anticipated flood levels, JTA can minimize potential damage, reduce downtime during flooding events, and promote the continuity of services.		✓	✓
Action 6.1.3: Improve stormwater systems for JTA facilities, including Haines Place, to reduce flooding risks. This includes installing better drainage solutions, maintaining existing systems regularly, and using green infrastructure like bioswales and permeable pavement to manage water more effectively, where needed.		✓	✓
Action 6.1.4: Install and maintain air filtration systems in JTA buildings to mitigate the impacts of smoke and improve indoor air quality during wildfire events. By equipping facilities with advanced air filtration systems, JTA can effectively reduce the infiltration of smoke and harmful particulates during wildfire incidents. This action can help protect the health and well-being of staff when air quality is compromised. Regular maintenance and monitoring of these systems will ensure their effectiveness.		✓	✓

Actions	Target Completion Timeline		
	2025	2026-2030	2031-2035
Action 6.1.5: Implement a vegetation management program around JTA buildings to reduce wildfire risk. Establishing a vegetation management program involves creating defensible space around JTA facilities by removing flammable plants and debris, pruning trees, and strategically planting fire-resistant vegetation. This can reduce the risk of wildfires impacting transit infrastructure and operations.		✓	✓

Strategy 6.2: Incorporate climate resilience into facility planning and design.

Actions	Target Completion Timeline		
	2025	2026-2030	2031-2035
Action 6.2.1: Develop a Climate Resilient Facility and Infrastructure Design Guideline for major renovations and new construction projects (e.g., transit centers). These guidelines should establish minimum requirements for cooling, air filtration, and heating systems in new buildings, promoting energy efficiency and supporting the health and safety of users.		✓	
Action 6.2.2: Revise site selection criteria to prevent the development or expansion of assets in areas prone to floods or wildfires, or to incorporate measures that mitigate the risks of these events. By proactively assessing potential sites for vulnerabilities and avoiding expanding assets in highly vulnerable areas, JTA can prevent costly damage and support the safety of infrastructure, staff, and the community. This action also includes integrating risk mitigation measures, such as improved drainage systems or fire-resistant landscaping, which can further reduce the likelihood of damage.		✓	
Action 6.2.3: Require climate-resilient plants for new landscaping projects and renovations. By selecting drought-resistant and low-water-use species, JTA can minimize water needs, especially during dry spells. Additionally, incorporating fire-resistant landscaping will mitigate wildfire risks, protecting both infrastructure and the surrounding environment.		✓	✓

Goal 7: Contribute towards building a more climate-resilient region.

JTA has a unique role in enhancing community resilience by providing reliable, comfortable, and safe transit services in the face of climate-related challenges. By prioritizing sustainability and climate readiness in its operations, JTA aims to support the community as it navigates the impacts of climate change. This goal involves not only improving the resilience of JTA's transit infrastructure and operations but also fostering partnerships with local government and organizations to support broader strategies that address climate risks and opportunities.

Strategy 7.1: Support regional emergency response and evacuation efforts.

Actions	Target Completion Timeline		
	2025	2026-2030	2031-2035
Action 7.1.1: Participate in countywide resilience planning and disaster relief discussions, including monthly Incident Management Team meetings, to strengthen JTA's role as a key partner. Collaborating with Jefferson County partners will allow JTA to gain insights into how it can support countywide efforts to enhance resilience, respond to emergencies, and support evacuations. These discussions will also provide opportunities for stakeholders to understand the resources JTA can offer, and the exchange of new ideas, information, and lessons learned.	✓	✓	✓
Action 7.1.2: Establish and annually update a Resilience and Disaster Relief Action Plan for JTA identifying priority actions for the year and equipment, staff and resources available to support local emergency management and response activities. Share with regional partners. By outlining actionable steps and resources in a Resilience and Disaster Relief Action Plan, JTA can not only prepare for climate related events and disruptions, but also clarify its role and responsibilities and identify steps to support countywide efforts. By sharing this with partners including Jefferson County Office of Emergency Management, East Jefferson Fire and Rescue, municipalities, Tribes, and other agencies, JTA can increase the visibility of its resources and availability to support larger resilience-building efforts.		✓	✓
Action 7.1.3: In coordination with partners, create and implement a communication strategy to convey JTA's role in local evacuation and emergency response efforts to key stakeholders and the community. Once resilience planning and operational preparations are underway, an important next step is to ensure that key stakeholders and the community are informed about the relevant information they need regarding JTA's role in emergency response and recovery. A communication strategy will help effectively convey this information by outlining outreach and engagement measures.		✓	✓

Actions	Target Completion Timeline		
	2025	2026-2030	2031-2035
Action 7.1.4: Establish cooperative agreements for resource sharing with neighboring transit agencies to create and maintain a unified response plan for climate-related emergencies and disruptions. Establishing cooperative agreements for resource sharing with neighboring transit agencies involves creating formal partnerships that enable collaboration during climate-related emergencies and disruptions. This could include joint training exercises, shared access to equipment and facilities, and coordinated emergency response protocols. By developing a unified response plan, participating agencies can streamline communication and resource allocation so that they can effectively support one another in times of crisis or significant challenges.			
Action 7.1.5: Collaborate with Jeffcom 911, the Emergency Operations Center, East Jefferson Fire and Rescue, and other key emergency response partners to establish an alternative communication protocol and channels for use when standard communication methods are unavailable. Developing an alternative communication protocol with partners can help to ensure effective coordination during emergencies when standard communication methods may fail (e.g., when cell service is down). This could include establishing dedicated radio frequencies or utilizing satellite phones. Regular joint training sessions can help familiarize all partners with these protocols to support seamless communication during real-life incidents. Additionally, creating a centralized platform for sharing critical updates and resource availability will help to build situational awareness among all stakeholders.			

Strategy 7.2: Advocate for and assist in countywide initiatives to enhance and climate-proof infrastructure.

Actions	Target Completion Timeline		
	2025	2026-2030	2031-2035
Action 7.2.1: Annually, advocate to relevant local and state agencies to assess vulnerabilities in existing transportation infrastructure related to climate impacts and to identify and implement priority upgrades or improvements. These evaluations should consider vulnerabilities of existing transportation infrastructure—including roadways, bridges, and other transit assets—against climate-related hazards such as flooding, sea level rise, landslides, erosion, and extreme heat. JTA can support this process by helping to identify priority areas for evaluation along routes.	✓	✓	✓
Action 7.2.2: Collaborate with local partners to seek funding for a study to assess the potential of on-site renewable energy generation, battery storage, and microgrid implementation at the Haines Place Transit Center. Develop a plan of action based on the study's findings. Pursuing a project like this could provide low-carbon and backup power to the Transit Center, support nearby critical infrastructure and offer public charging stations for EVs. A project of this magnitude would require collaboration with and leadership from partners.  Emissions Reduction Co-Benefit			✓
Action 7.2.3: Identify and pursue joint investment opportunities with partners to develop EV charging infrastructure throughout Jefferson County. Create a plan and investment strategy outlining collaborative investments and sources of funding. Expanding charging infrastructure throughout the County will not only support JTA's fleet by adding more potential opportunities for on-route charging for suitable vehicles, but also strengthen the overall transportation network by facilitating easier access to chargers for all users. Collaborating with partners can benefit multiple stakeholders and contribute to a more resilient transit system that can accommodate the growing demand for EV charging.  Emissions Reduction Co-Benefit		✓	

Improve Governance for Climate Action

The successful implementation of the CAP hinges on effective governance, which encompasses oversight, accountability, and clear decision-making processes. By emphasizing flexibility and establishing a clear implementation process, JTA can work to meet the CAP goals while effectively respond to changing conditions.

Goal 8: Ensure meaningful implementation of the CAP through effective oversight, informed decision making, and clear accountability mechanisms.

To enhance climate action governance, JTA can take several strategic steps, such as establishing a dedicated climate action team to oversee implementation and track progress. By integrating CAP priorities into budget planning and staff workplans, JTA can ensure that necessary resources are allocated, and individual responsibilities are clearly defined. Additionally, creating a structured framework for evaluating and prioritizing actions as well as tracking progress will streamline processes, allowing for timely adjustments as new information and technologies emerge.

Strategy 8.1: Prioritize and implement CAP actions.

Actions	Target Completion Timeline		
	2025	2026-2030	2031-2035
Action 8.1.1: Form a dedicated climate action team within JTA to lead the implementation of the CAP. This dedicated team can spearhead the implementation of the CAP, with a focus on tracking progress, reporting outcomes, and prioritizing actions on an annual basis.	✓		
Action 8.1.2: Conduct an annual review of the CAP and Master List of Goals, Strategies, and Actions to assess relevance and effectiveness. This review will involve adding new initiatives, removing outdated items, and updating existing actions to ensure alignment with current conditions and priorities. Successes should be tracked, recorded and shared with the JTA Board and public. This regular review will help keep the list dynamic and responsive to emerging needs and opportunities.	✓	✓	✓
Action 8.1.3: Establish a framework for evaluating and prioritizing climate action initiatives based on defined criteria. A structured framework for assessing and prioritizing climate actions will streamline the selection process each year. This framework should consider factors like emissions reduction potential, asset vulnerability, required resources, available funding, technological feasibility, and co-benefits.	✓		

Actions	Target Completion Timeline		
	2025	2026-2030	2031-2035
Action 8.1.4: Create an annual list of priority CAP actions for implementation. JTA can apply the prioritization framework (see *Action 8.1.3*) to create an annual list of actions that align with the goals of the CAP and JTA's current priorities and capabilities. This process should consider actions from the CAP and any updates to the Master List of Goals, Strategies, and Actions. Additionally, collaboration opportunities with partners and jurisdictions pursuing shared climate goals should be considered to support collective progress.	✓	✓	✓
Action 8.1.5: Integrate CAP priorities into the Comprehensive Operational Analysis to identify trends and areas for improvement. CAP priorities should be incorporated into the Comprehensive Operational Analysis, which will include recommendations to enhance JTA's operations and services to better serve residents and visitors to Jefferson County and was being developed concurrently with the CAP. Strategies such as fleet electrification might inform the specific recommendations that are made within the Comprehensive Operational Analysis.	✓		
Action 8.1.6: Incorporate the identified priority actions into JTA's budget to secure necessary funding and resources. Incorporating CAP actions into the annual JTA budget ensures that resources are available for implementation when needed and helps identify where supplemental funding may be necessary, allowing JTA to seek out additional financial support in a timely manner. It allows for proactive planning and facilitates transparent communication with stakeholders regarding funding priorities.	✓	✓	✓
Action 8.1.7: Ensure that annual workplans include relevant priority actions for implementation. By linking priority CAP actions to workplans, JTA can effectively operationalize these actions. This approach can help build accountability by clearly defining who or which department is responsible for each action. As actions are accomplished, individuals or departments can receive recognition for their contributions.	✓	✓	✓
Action 8.1.8: Annually update the Transit Development Plan to reflect the priority actions, ensuring they are part of the strategic planning process. The Transit Development Plan outlines the replacement, enhancement, and capital needs for the next six years, and is a key pathway for integrating specific strategies and actions from the CAP that pertain to JTA's assets and operations.	✓	✓	✓

Strategy 8.2: Monitor and report progress on CAP implementation.

Actions	Target Completion Timeline		
	2025	2026-2030	2031-2035
Action 8.2.1: Conduct a GHG emissions inventory for JTA operations at least every three years. Future GHG inventories should be compared against the 2022 baseline to track progress in reducing emissions over time.		✓	✓
Action 8.2.2: Adopt a target for increasing the number of rider miles traveled. Increasing the number of rider miles traveled serves as a key performance indicator (KPI) for Goal 1—reducing countywide emissions. This target will be established based on the results of the Comprehensive Operational Analysis using 2024 data to ensure that it aligns with current usage.	✓		
Action 8.2.3: Establish a target for reducing countywide VMT in partnership with local government agencies and organizations. This target should be established with local government and organizations. While JTA can contribute to efforts to reduce countywide VMT through improved transit options, it has limited control over this. Still, VMT provides a helpful metric to understand JTA's success towards achieving Goal 1—reducing countywide emissions.	✓		
Action 8.2.4: Conduct annual reviews of progress towards KPIs and document completed actions. Regular tracking of progress allows JTA to assess if it is making progress towards its goals, identify areas for improvement, and make necessary adjustments to strategies and actions. This process also helps to support transparency in implementation and build a culture of continuous improvement.	✓	✓	✓
Action 8.2.5: Create an annual progress report detailing achievements, challenges, and future goals, and share it with stakeholders. The report will give stakeholders a clear picture of what has been accomplished, highlighting both successes and areas needing more focus. By sharing these insights, JTA can promote transparency and invite stakeholder participation in CAP implementation. This communication can also help uncover new partnerships and resources to boost future efforts.	✓	✓	✓
Action 8.2.6: Conduct a thorough review and update of the CAP every three to five years. This review should focus on reevaluating long-term goals, emerging technologies, funding opportunities, JTA capacity and resources, and community needs. This process will also integrate the latest climate hazard information to ensure that strategies remain relevant and effective in addressing evolving challenges. Regular detailed reviews will help JTA adjust to evolving conditions and make smart decisions for climate action.		✓	✓

5. Implementation

The final phase of the climate action planning process, following the adoption of the plan, involves implementing the CAP. This chapter details the necessary steps to ensure successful implementation, how JTA will assess progress toward its climate action goals, and a recommended schedule for updating the plan over time.

An important aspect of implementation is adaptive management. As state requirements evolve, new regulations emerge, or local needs change, JTA will need to modify the CAP and implementation plans accordingly. Similarly, advancements in technology or changes in funding streams could necessitate adjustments to the strategies and actions in order to remain effective and relevant. This flexibility will ensure that the CAP continues to meet its goals and respond to changing conditions.

Prioritizing Strategies and Actions for Implementation

A key step of the implementation process involves determining which strategies and actions should be prioritized for completion on a given timeline. The CAP should be reviewed and updated at least annually to ensure its relevance and effectiveness. During this review, the list of strategies and actions should be revisited to

determine which initiatives should be prioritized for incorporation into budgets, work plans, and funding pursuits for the upcoming year. To streamline the process, a designated team should be appointed to lead the prioritization efforts.

For the annual review of GHG reduction strategies and actions, prioritization may be based on factors such as their potential for emissions reduction, the financial and human resources required for implementation, available funding opportunities, technological considerations, and co-benefits. Similarly, resilience measures should be prioritized according to the criticality or vulnerability of assets, resource considerations, funding opportunities, and additional co-benefits. Identifying existing and potential funding sources and keeping up to date with the state of relevant technology or climate hazards will be an important step in this process. Additionally, prioritization considerations may include opportunities for collaboration with partners and jurisdictions working toward their own climate action goals.

JTA should establish a schedule and framework to evaluate these factors annually, allowing the agency to systematically decide which actions to prioritize and integrate into its budgets, work plans, and funding pursuits for the upcoming year. At this time, the lead department responsible for each initiative should be designated. Many actions will require support from multiple departments and, in some cases, outside collaborators.

The supporting resource, JTA Master List of Climate Goals, Strategies, and Actions, contains the goals, strategies, and actions included in the CAP. This spreadsheet, which should be referenced during the annual prioritization process, includes high-level cost estimates, the level of JTA's control over implementation, estimated timeframes, and associated co-benefits. It will be regularly updated and refined by JTA staff, and with the support of the JTA Board.

Collaboration

Collaboration is essential for the successful implementation of the CAP, as it leverages the strengths and resources of various stakeholders to address climate challenges effectively. JTA is committed to investing in its partnerships with a diverse array of entities, including the State of Washington, Jefferson County, JPUD, East Jefferson Fire and Rescue, local municipalities, other transit agencies, Tribes, and local organizations. These partnerships will support successful implementation by allowing for knowledge sharing, resource allocation, and coordinated efforts in addressing both GHG emissions and climate resilience. For instance, ongoing collaboration with local municipalities can streamline the integration of climate goals into community planning processes, while partnerships with regional transit agencies can promote the sharing of best practices in sustainable transportation.

To further strengthen this collaboration, JTA will continue to conduct regular outreach efforts within the community. Engaging with residents and local organizations will not only raise awareness about the CAP and the important role that transit can play in climate action, but also encourage community participation in its implementation. Through these collaborative efforts, JTA will continue to build the support network that is necessary for achieving the goals outlined in the CAP as well as the goals of other local organizations.

Monitoring and Reporting

Effective tracking and monitoring of the CAP goals, strategies, and actions will allow JTA to assess progress, identify opportunities and challenges, and ensure accountability in implementation. JTA should conduct a review of the CAP on an annual basis to evaluate progress towards the established goals. A designated team should lead this effort to ensure consistent oversight and accountability in the tracking process. This designated team will track key performance indicators (KPIs) aligned with each goal within the CAP. KPIs, which are referenced in ***Appendix C***, include examples such as:

- Reduction in GHG emissions
- Percentage increase in public transit ridership
- Attendance at Incident Management Team meetings

Data collection methods will include regular surveys, usage statistics, emissions inventories, and collaboration with partner agencies to gather relevant information. At the time of the evaluation, JTA will also document which actions have been completed and any data to support the effectiveness of those actions.

To document progress JTA will prepare an annual progress report summarizing the findings from the monitoring efforts. This report will detail advancements made, challenges encountered, and any adjustments to strategies or actions needed to stay on track with the CAP goals. The report will be made available to employees and the public and shared with stakeholders to maintain transparency and encourage community involvement.

Integration into Other Planning Documents

The integration of the CAP into JTA's other planning documents, such as the annually updated Transit Development Plan and the Long-Range Plan, is key for aligning climate goals with other initiatives and achieving effective implementation. The Transit Development Plan forecasts replacement, enhancement of service, and capital needs over the next six years, making it an important avenue for incorporating specific strategies and actions from the CAP related to JTA's assets and operations. The 20-year Long Range Transit Plan, which establishes a vision for the future of transit in Jefferson County based on existing conditions, future projections, and community feedback, can benefit from the CAP's objectives by embedding climate considerations into long-term visioning and project prioritization. The CAP goals should also be incorporated into the Comprehensive Operational Analysis, which was being developed concurrently with the CAP, to review JTA's operations and services with the goal of improving offerings for residents and visitors to Jefferson County. Additionally, priority actions should be incorporated into capital and operational budgets and staff workplans each year. This connection between planning documents will ensure that JTA's planning processes are cohesive and responsive to climate challenges, while also being operationalized.

Updating the Climate Action Plan

In addition to the annual review of the CAP goals and strategies described above, a dedicated group from JTA should conduct a more comprehensive evaluation every three to five years. This evaluation should consider longer-term goals and shifts in technology, funding opportunities, collaboration opportunities, and community needs while incorporating additional climate hazard information as new data becomes available. These updates will allow JTA to assess progress and refine strategies as necessary to meet both immediate and future climate and transit needs.

6. Conclusion

This CAP represents JTA's first comprehensive effort to address climate change. It aligns with the agency's vision of a future where all Jefferson County residents and visitors have access to a low-emissions transit system that supports a thriving, resilient, and connected community.

Grounded in a set of guiding principles, the CAP presents a range of climate action solutions that prioritize equity, accessibility, and community needs. By providing a model for how rural transit agencies can address climate change, JTA is committed to leading initiatives that not only reduce GHG emissions or build climate resilience but also deliver multiple benefits, enhancing the health, well-being, and economic vitality of the community.

As JTA works towards these ambitious goals, the agency will prioritize collaboration and partnerships to expand its climate action efforts. By drawing on the best available science and ensuring that its climate action strategies are sustainable over time, JTA aims to make informed decisions that benefit both current residents and visitors as well as future generations. Although this CAP may not cover every possible solution, it provides a clear vision for action and formally begins JTA's efforts to prepare the transit system and community for the challenges of climate change.

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Appendix A.
Community Survey Questions

Jefferson Transit's Climate Action Plan Survey

Jefferson Transit Authority is developing a Climate Action Plan that will provide a roadmap to reduce greenhouse gas emissions associated with our operations and our community's transportation. The Climate Action Plan will also provide guidance as Jefferson Transit Authority prepares for the impacts of climate change.

We invite you to participate in this survey to share your thoughts, opinions, and priorities for Jefferson Transit Authority and climate action. The input gathered through this community survey will shape the goals, strategies, and actions reflected in the Climate Action Plan.

This questionnaire will take approximately 10-15 minutes to complete. Your participation is voluntary and confidential. The survey may be completed as a paper version (included in the following pages) or online on a desktop computer or mobile device. Access the online version by scanning the QR code at the bottom of this page or using the following URL: **bit.ly/4cSQrMS.**

Eligibility. You live in or visit Jefferson County, Washington.

Your privacy. Individual responses will remain confidential. We will share compiled results in reports and announcements.

Accessibility. To request assistance in completing this survey or for inquiries about accessibility, please contact Kelly Graves, Executive Assistant, *kgraves@jeffersontransit.com*, 1-360-385-3020 ext. 108.

Questions or concerns? Please contact *kgraves@jeffersontransit.com* with questions.

Submission information. You can submit a completed copy of the paper survey in one of the following ways:

- Mail your completed survey to the following address by June 7:
  Attn: Kelly Graves, Jefferson Transit, 63 4 Corners Rd, Port Townsend, WA 98368
- Drop your completed survey off at:
  - 63 4 Corners Rd, Port Townsend, WA 98368
  - Haines Place Transit Center, 440 12th St, Port Townsend, WA 98368
- Drop your completed survey off with a JTA driver

Please share this survey with other Jefferson County residents! You can share the link to the online survey (**bit.ly/4cSQrMS)** or scan the QR code with the camera on your phone.

Visit **https://jeffersontransit.com/climate-action-plan/** for more updates and ways to engage.

TOPIC 1. We want to hear what's most important to Jefferson County residents and visitors.

1. What are the **first three words or phrases** that come to mind to describe **your priorities** for Jefferson Transit Authority's Climate Action Plan? There are no right or wrong answers. We are interested in gathering a wide range of perspectives and priorities.

    1. _____

    2. _____

    3. _____

TOPIC 2. In the Pacific Northwest, climate change is causing and/or contributing to floods, heatwaves, wildfires, and wildfire smoke that sometimes affect transportation services. Scientists expect these impacts to become more severe and more frequent over time. Jefferson Transit Authority would like to know your ideas and preferences about how to prepare our facilities, transit services, and operations for the future.

2. We want to understand if climate-related events are affecting or not affecting our community members as they travel in Jefferson County and the surrounding region.

    Below, we've listed a few different types of events. For each one, please let us know **how much it has affected or not affected your travel in Jefferson County and the surrounding region**.

	No effect on me at all	Minor effect	Moderate effect	Major effect	Skip / N/A
Flooding	○	○	○	○	○
Heavy rainstorms	○	○	○	○	○
Snowstorms	○	○	○	○	○
Heat waves	○	○	○	○	○
Wildfires	○	○	○	○	○
Wildfire smoke	○	○	○	○	○

3. If any of these events have affected your ability to travel in Jefferson County and the surrounding region, please provide specific details below.

4. In what ways do you think Jefferson Transit Authority can **prepare for climate change impacts** and/or **support the community** through events such as flooding, heavy rainstorms, snowstorms, heat waves, wildfire smoke, etc.?

TOPIC 3. Jefferson Transit Authority has a goal of increasing the number of people who ride the bus.

5. The following options are **potential** Jefferson Transit Authority service change(s) that may make it easier for our community, as a whole, to use transit more often. Please indicate **how much you think each option would increase the number of people who choose to ride the bus.**

	No increase at all	Minor increase	Moderate increase	Major increase	Skip / N/A
Bus service provided on Sundays	○	○	○	○	○
Bus service begins earlier in the day **Which routes?** _____	○	○	○	○	○
Bus service extended to run later into the evening **Which routes?** _____	○	○	○	○	○
More frequent service on routes such as **#1** (Brinnon/Quilcene/Tri-Area), **#7** (Poulsbo/Port Ludlow/Tri-Area), **#8** (Sequim), and **#14** (Kingston Express)	○	○	○	○	○
More frequent service on routes in and around Port Townsend	○	○	○	○	○
Service hours more aligned with commute times	○	○	○	○	○
Increase connections with Kitsap Transit in Poulsbo (with options to the Bainbridge Island ferry)	○	○	○	○	○
Bus routes adjusted to cover a greater area of the county	○	○	○	○	○
On-demand service provided to cover a greater area of the county	○	○	○	○	○

What other service changes **not listed above**, if any, would make it easier for our community to use transit more often?

3

TOPIC 1. We want to hear what's most important to Jefferson County residents and visitors.

1. What are the **first three words or phrases** that come to mind to describe **your priorities** for Jefferson Transit Authority's Climate Action Plan? There are no right or wrong answers. We are interested in gathering a wide range of perspectives and priorities.

    1. _____

    2. _____

    3. _____

TOPIC 2. In the Pacific Northwest, climate change is causing and/or contributing to floods, heatwaves, wildfires, and wildfire smoke that sometimes affect transportation services. Scientists expect these impacts to become more severe and more frequent over time. Jefferson Transit Authority would like to know your ideas and preferences about how to prepare our facilities, transit services, and operations for the future.

2. We want to understand if climate-related events are affecting or not affecting our community members as they travel in Jefferson County and the surrounding region.

    Below, we've listed a few different types of events. For each one, please let us know **how much it has affected or not affected your travel in Jefferson County and the surrounding region**.

	No effect on me at all	Minor effect	Moderate effect	Major effect	Skip / N/A
Flooding	○	○	○	○	○
Heavy rainstorms	○	○	○	○	○
Snowstorms	○	○	○	○	○
Heat waves	○	○	○	○	○
Wildfires	○	○	○	○	○
Wildfire smoke	○	○	○	○	○

3. If any of these events have affected your ability to travel in Jefferson County and the surrounding region, please provide specific details below.

4. In what ways do you think Jefferson Transit Authority can **prepare for climate change impacts** and/or **support the community** through events such as flooding, heavy rainstorms, snowstorms, heat waves, wildfire smoke, etc.?

TOPIC 4. For this final topic, we want to ask a few questions about your use of different transportation options.

6. How frequently have you used the following form of transportation **in the last month** when you needed to go somewhere (i.e., not just for leisure)?

Types of Transportation

	Did not use in the last month	Used **1-3 times in the last month**	Used **1-2 times a week** in the last month	Used **3-4 times a week** in the last month	Used **daily or most days** in the last month	Skip / N/A
Personal car (driving alone)	○	○	○	○	○	○
Personal car (driving with others)	○	○	○	○	○	○
Jefferson Transit bus	○	○	○	○	○	○
Other bus service besides Jefferson Transit	○	○	○	○	○	○
Jefferson Transit Dial-a-Ride service	○	○	○	○	○	○
Ferry	○	○	○	○	○	○
Vanpool or ridesharing service	○	○	○	○	○	○
Bicycle or micro-mobility device (e.g., scooter, skateboard, etc.)	○	○	○	○	○	○
Walking	○	○	○	○	○	○
Other: _____	○	○	○	○	○	○

If you rode the bus or used Dial-a-Ride service in the last month, answer #7.

If you did NOT ride the bus or use Dial-a-Ride service in the last month, *SKIP* #7 and go to #8.

7. The following statements are reasons that people may choose to ride the bus or use Dial-a-Ride. Please indicate which of the following are reasons that you chose to ride the bus or use Dial-a-Ride **in the last month**.

I used the bus or Dial-a-Ride…

	Yes	No	Skip / N/A
Because I did not have another transportation option	○	○	○
Because it was less expensive than other options	○	○	○
Because it was safer than other options	○	○	○
So that I didn't have to find a parking space	○	○	○
So that I didn't have to pay for a parking space	○	○	○
Because it was faster than other options	○	○	○
So that I didn't have to spend time driving in traffic	○	○	○
Because it helps support a stronger transit system for people in my community who are transit-dependent	○	○	○
Because it connected me to neighboring transit providers	○	○	○
Because it is a more environmentally friendly choice than driving a personal car	○	○	○

For what other reasons **not listed above**, if any, did you choose to use the bus or Dial-a-Ride?

If you drove a personal car in the last month, answer #8.

If you did NOT drive a personal car in the last month, *SKIP* #8 and go to #9.

8. The following statements are reasons that people may choose to use their personal cars. Please indicate which of the following are reasons that you chose to use a personal car **in the last month.**

I used a personal car because…

	Yes	No	Skip / N/A
I had to drive other people somewhere	○	○	○
I was transporting groceries, luggage, or other large items	○	○	○
I was going somewhere outside of the bus service area	○	○	○
It was faster than other options	○	○	○
The bus schedule did not align with my schedule	○	○	○
The bus schedule is too infrequent	○	○	○
It was safer than other options	○	○	○
It was more comfortable than other options	○	○	○
The bus stop is too far from my starting point or destination	○	○	○

For what other reasons **not listed above**, if any, did you choose to use a personal car?

6

Demographics

Finally, we want to ask some demographic questions to help us understand who in the community this survey has and has not reached. These questions are optional, and your answers will remain confidential. If you would like to skip these questions, please skip to #15.

9. In what year were you born? _____

10. Which gender(s) best describe you? *Select all that apply*.

- ○ Male
- ○ Female
- ○ Non-binary / third gender
- ○ Prefer not to say

11. How would you describe yourself? *Select all that apply*.

- ○ White
- ○ Latino/a/x, Hispanic, or Spanish
- ○ Black or African American
- ○ American Indian or Alaska Native
- ○ Asian
- ○ Native Hawaiian or Pacific Islander
- ○ Other: _____

12. Where is your primary residence?

City _____ **State** _____

13. Select the option that best describes your annual household income (gross, before taxes).

- ○ Less than $20,000
- ○ $20,000 to $49,999
- ○ $50,000 to $99,999
- ○ $100,000 to $149,999
- ○ $150,000 to $199,999
- ○ $200,000 or more

14. **FINAL COMMENTS.** The purpose of this survey is to understand Jefferson County residents' and visitors' thoughts, opinions, and priorities for Jefferson Transit Authority's climate action planning efforts.

Is there anything else that you would like to share on this topic that was not addressed in the survey?

Thank you for your time and participation! Our team appreciates your interest in this project. If you have any other questions, please reach out to *kgraves@jeffersontransit.com*.

Appendix B. Summary of Community Survey Results

Climate Action Plan

Summary of Survey Results

Date: July 16, 2024
Prepared by: Peak Sustainability Group

Survey Background

Jefferson Transit Authority (JTA) conducted an online survey to gather input from the Jefferson County community for the Climate Action Plan (CAP). The survey was conducted from April 15 to June 7, 2024. It was available both online and in physical paper format. Survey questions are included in Appendix B.

Survey Distribution

The survey link was distributed through the project webpage, a press release, social media (i.e., Facebook and Instagram), flyers posted at various community spaces, the Jefferson Public Utility District (JPUD) May newsletter, and email to the JTA Board, the Transit Advisory Group, and several other stakeholder groups. Paper copies of the survey were available at the Four Corners Park and Ride, Haines Place Transit Center, and Quilcene Community Center.

Additionally, JTA staff introduced the CAP and encouraged visitors to complete the survey at the Moving in the Right Direction Transportation Conference (April 19) and the Connectivity Fair (April 20).

Summary of Results

A total of 181 respondents participated in the survey. Of these, 143 respondents completed the survey (i.e., clicked through all the questions) and 38 stopped part way. The following section includes a summary of the survey results (n=number of respondents).

JTA utilized a variety of outreach methods to increase response rates and the diversity of the respondent pool, but these methods did not ensure a random sample of respondents. Therefore, the survey findings cannot be generalized to the entire population of Jefferson County.

Priorities for the CAP

When asked to name their top three priorities for the JTA CAP, respondents *(n=169)* had diverse answers (see Figure 1). Accessibility was the most commonly cited priority *(n=37, 22%)*, followed by adoption of electric/hybrid vehicles *(n=35, 21%)*, emissions reduction *(n=30, 18%)*, increased frequency of service *(n=27, 16%)*, reduced car use (*n=27, 16%)*, and convenience *(n=24, 14%)*.[1]

Fewer, but still some, participants identified sustainability *(n=20, 12%)*, expanded service *(n=20, 12%)*, increased ridership *(n=19, 11%)*, and free or affordable fares *(n=17, 10%)* as important priorities. Other, less common themes that appeared in respondents' priorities for JTA's CAP included reliability *(n=12, 7%)*, cost-effectiveness *(n=11, 7%)*, efficiency *(n=11, 7%)*, regional connectivity *(n=10, 6%)*, right-sized fleet (e.g., smaller buses) *(n=9, 5%)*, safety *(n=8, 5%)*, greater coverage in Jefferson County *(n=8, 5%)*, creativity *(n=6, 4%)*, achievability *(n=5, 3%)*, and community enhancement *(n=5, 3%).*

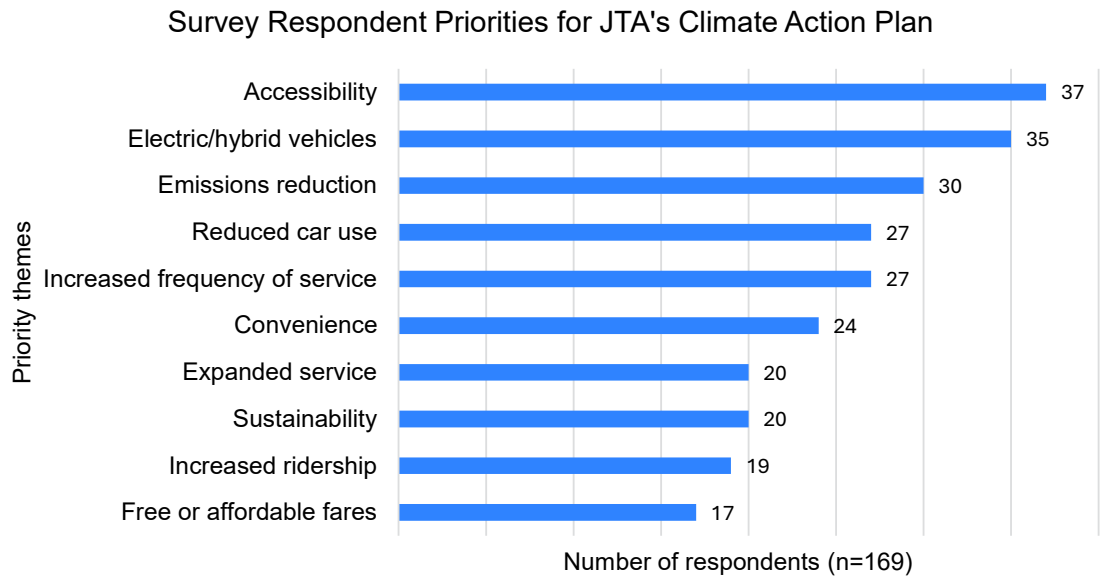

Figure 1: Top survey respondent priorities for JTA's Climate Action Plan

[1] Respondents' priorities for the CAP were compiled in Excel, organized by themes, and carefully coded to prevent double counting. For instance, if a respondent listed "drive car less" as their first priority and "reduce traffic" as their second priority, these were grouped under the theme "reduced car use" to maintain consistency in analysis.

Climate-Related Impacts on Travel

In a question about the impacts of climate-related events on travel in the Jefferson County region, respondents (*n=161*) reported that their travel has been most impacted by wildfire smoke and snow events. A total of 69% of respondents indicated that wildfire smoke had a moderate or major effect on their travel. Over 54% of respondents indicated that snow had a moderate or major effect on their travel.[2] Approximately 47% of respondents also indicated that heat waves had a moderate or major impact on their ability to travel.

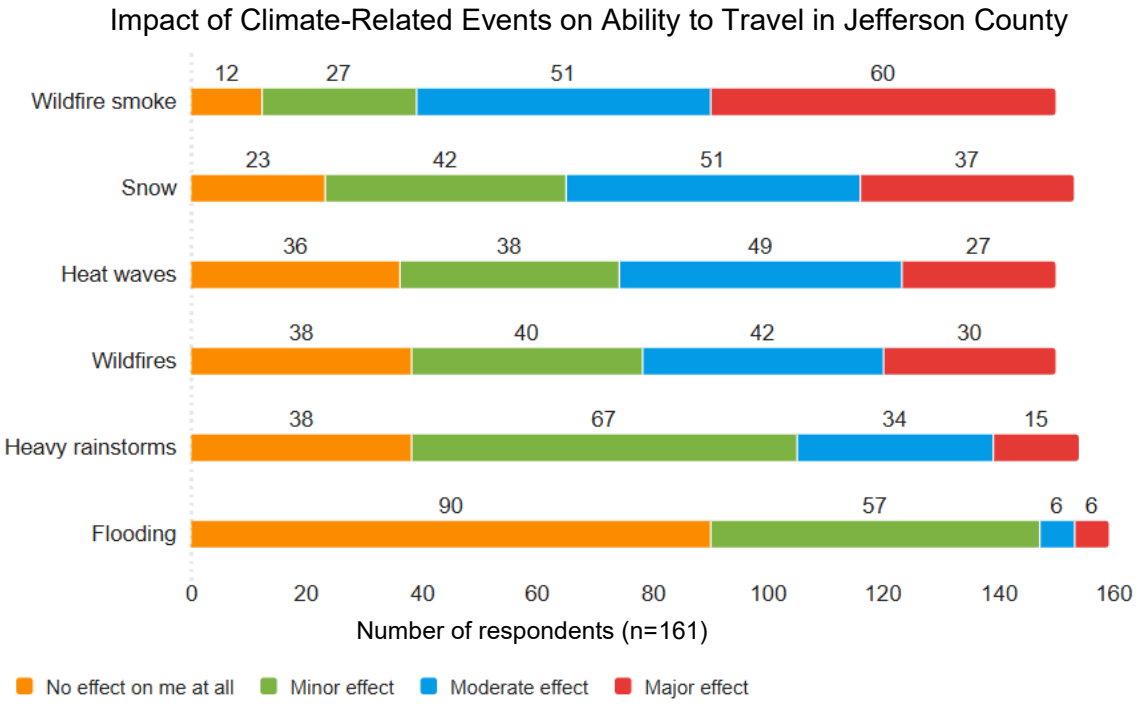

Figure 2: Impact of climate-related events on survey respondents' ability to travel in Jefferson County and the surrounding region

Building Climate Resilience in the Jefferson County Community

In an open-ended question, respondents (*n=135*) were asked to suggest ways JTA could prepare for climate change impacts and support the community through events such as flooding, heavy rainstorms, heat waves, and wildfire smoke.

Themes present in the responses received included:

- Sending alerts or updates to riders before or during service delays, disruptions, or extreme weather events

[2] Snow is not considered one of the main climate-change-related hazards in Jefferson County but came up repeatedly in conversations about JTA's resilience to extreme weather events.

- Expanding service and increasing access to transit (greater frequency, greater coverage countywide, etc.)
- Providing evacuation support during emergencies
- Upgrading bus stops and bus shelters to protect riders from extreme weather
- Ensuring buses have adequate air filtration systems for days with poor air quality
- Ensuring buses have climate control systems that can remain functional during extreme weather events (e.g., cold snaps, heat waves)
- Maintaining service during extreme weather events
- Maintaining service by using smaller vehicles during hazardous weather events
- Expanding the Dial-A-Ride service model to a broader section of the public
- Coordinating with other agencies in Jefferson County for emergency preparedness and management
- Transporting people to resilience hubs before or during extreme weather events
- Providing cooled or heated spaces for transit riders in JTA buildings during extreme weather events
- Incorporating climate resilience into transit planning
- Incorporating flood resilience into transit planning
- Incentivizing bike use
- Providing masks on days with poor air quality
- Providing emergency preparedness education for transportation-related topics
- Advertising transit as an alternative transportation method in extreme weather
- Carrying drinking water for riders during emergencies
- Keeping roadways clear of snow and other debris

Increasing JTA Ridership

Respondents *(n=141)* were asked to estimate how much certain hypothetical service changes would increase the number of people who ride the bus. As shown in Figure 3 and Table 1, most respondents felt that the hypothetical service changes would lead to moderate or major increases in the number of people who ride the bus. Over 70% of respondents felt that service hours more aligned with commute times, increased service on routes such as #1, #7, #8, and #14, on-demand service to cover a greater area of the County, and increased connections with Kitsap Transit in Poulsbo (with options to the Bainbridge Island ferry) would lead to a moderate or major increase in ridership. See Table 1 for the average rating for each hypothetical service change.

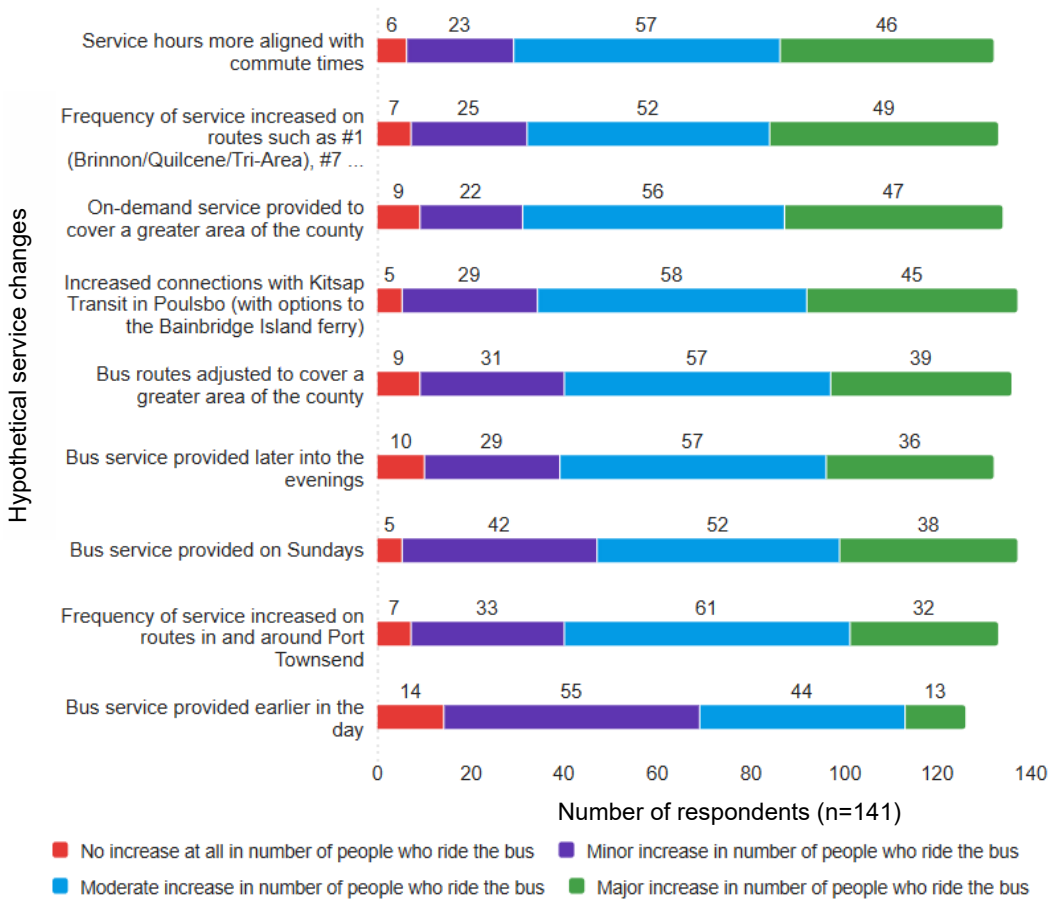

Figure 3: Hypothetical service changes and predicted ridership increases

Table 1: Hypothetical service changes and predicted ridership increases, with average respondent rating and percent breakdown

		Percent breakdown by level of increase			
Hypothetical service changes	**Average rating (1-4)**	**No increase (1)**	**Minor increase (2)**	**Moderate increase (3)**	**Major increase (4)**
Service hours more aligned with commute times (n=132)	3.08	4.55%	17.42%	43.18%	34.85%
Frequency of service increased on routes such as #1, #7, #8, #14 (n=133)	3.08	5.26%	18.80%	39.10%	36.84%

On-demand service provided to cover a greater area of the county (n=134)	3.05	6.72%	16.42%	41.79%	35.07%
Increased connections with Kitsap Transit in Poulsbo (with options to Bainbridge Island ferry) (n=137)	3.04	3.65%	21.17%	42.34%	32.85%
Bus routes adjusted to cover a greater area of the county (n=136)	2.93	6.62%	22.79%	41.91%	28.68%
Bus service provided later into the evenings (n=132)	2.90	7.58%	21.97%	43.18%	27.27%
Bus service provided on Sundays (n=137)	2.90	3.65%	30.66%	37.96%	27.74%
Frequency of service increased on routes in and around Port Townsend (n=133)	2.89	5.26%	24.81%	45.86%	24.06%
Bus service provided earlier in the day (n=126)	2.44	11.11%	43.65%	34.92%	10.32%

In an open-ended follow-up question, respondents were asked if there were any service changes not listed in the previous question that would make it easier for the Jefferson County community to use transit more often.

Themes present in the responses received included:

- Partnering with local businesses
- Increasing or adding more times for ferry connections
- Continuing the zero-fare policy
- Adding more stops
- Redesigning routes to use smaller vehicles with greater frequency
- Supporting active transportation
- Using alerts or a live update system so riders receive information quickly
- Providing extra services for the elderly
- Creating a charter/shuttle program
- Restoring the vanpool program

Other responses such as implementing paid parking in specific areas, advertising the benefits of transit, adding more bike racks on buses, upgrading transit centers, and incentivizing bus trips would not be considered “service changes” but are still initiatives that could be employed as part of a comprehensive strategy to increase JTA ridership.

Use of Different Modes of Transportation

Respondents *(n=143)* were asked to report their use of different modes of transportation in the last month. As shown in Figure 4 and Table 2, personal cars and walking are the most frequently used modes of transportation among survey respondents. A total of 66% of respondents reported using a personal car three to four days a week, most days, or daily in the last month, and 57% of respondents reported walking three or four days a week, most days, or daily in the last month to get where they needed to go. Vanpool or ridesharing services, Dial-a-Ride, and buses were the least-used modes of transportation among survey respondents. Most respondents also took the ferry one to three times in the last month. See Table 2 for the average rating for each mode of transportation.

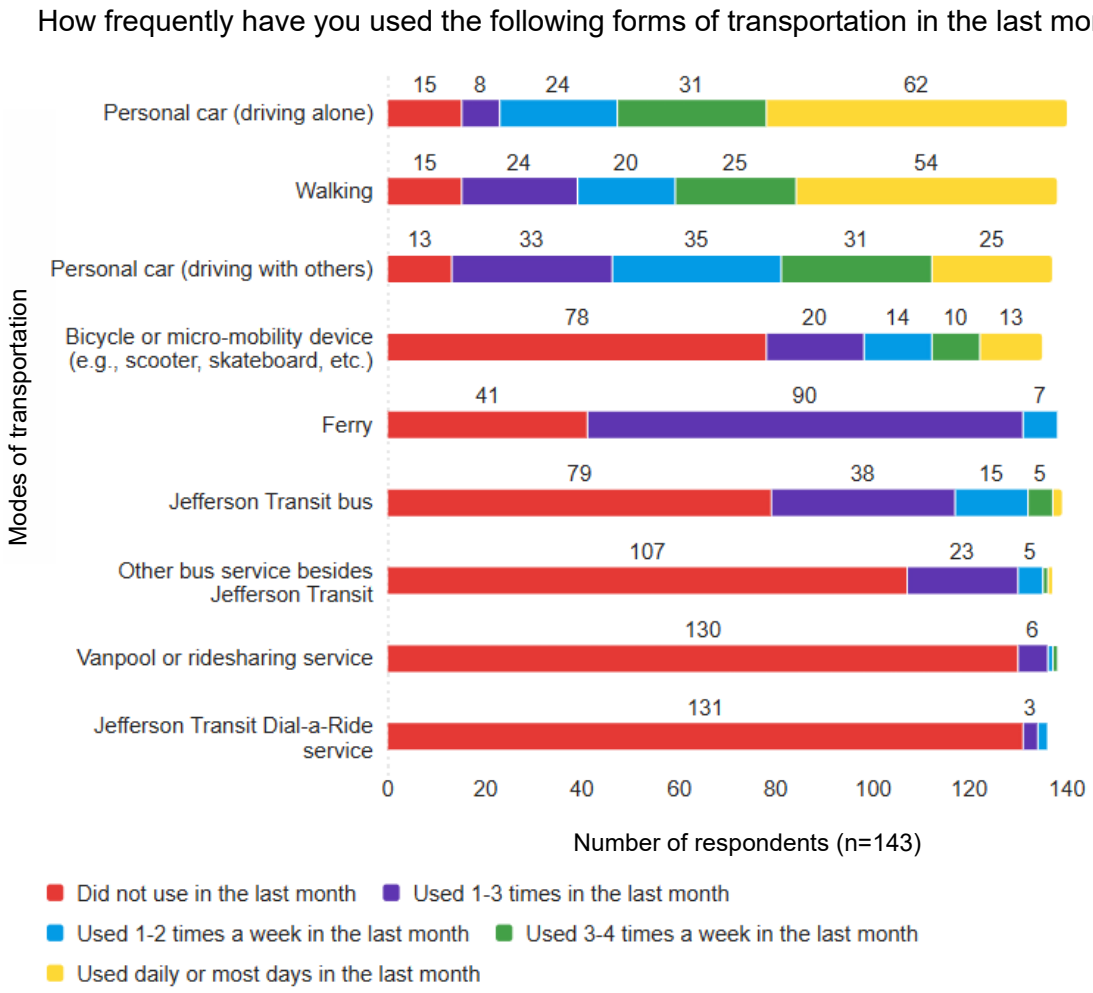

Figure 4: Respondents' use of different modes of transportation

Table 2: Respondents' use of different modes of transportation, with average respondent rating and percent breakdown

		Percent breakdown by frequency of use				
Modes of transportation	**Average rating (1-5)**	**Did not use in the last month (1)**	**Used 1-3 times in the last month (2)**	**Used 1-2 times a week in the last month (3)**	**Used 3-4 times a week in the last month (4)**	**Used daily or most days in the last month (5)**
Personal car (driving alone) (n=140)	3.84	10.71%	5.71%	17.14%	22.14%	44.29%
Walking (n=138)	3.57	10.87%	17.39%	14.49%	18.12%	39.13%
Personal car (driving with others) (n=137)	3.16	9.49%	24.09%	25.55%	22.63%	18.25%
Bicycle of micro-mobility device (e.g., scooter, skateboard, etc.) (n=135)	1.96	57.78%	14.81%	10.37%	7.41%	9.63%
Ferry (n=138)	1.75	29.71%	65.22%	5.07%	0%	0%
Jefferson Transit bus (n=139)	1.65	56.83%	27.34%	10.79%	3.60%	1.44%
Other bus service besides Jefferson Transit (n=137)	1.29	78.10%	16.79%	3.65%	0.73%	0.73%
Vanpool or ridesharing service (n=138)	1.08	94.20%	4.35%	0.72%	0.72%	0%
Jefferson Transit Dial-a-Ride service (n=136)	1.05	96.32%	2.21%	1.47%	0%	0%

Reasons for Riding the Bus

In a follow-up question, respondents *(n=64)* who used the bus or Dial-a-Ride in the last month were asked about their reasons for doing so.

As shown in Figure 5, 73% of respondents indicated that they chose transit because it was a more environmentally friendly choice than driving a personal car, while 70% of respondents mentioned they chose to use the bus or Dial-a-Ride because it helps support a stronger transit system for transit-dependent people. A total of 53% of respondents highlighted that they chose transit because it was less expensive than other options. Other reasons respondents chose transit included that transit connected them to neighboring transportation providers *(52%)* and they did not have to spend time driving in traffic *(50%)*.

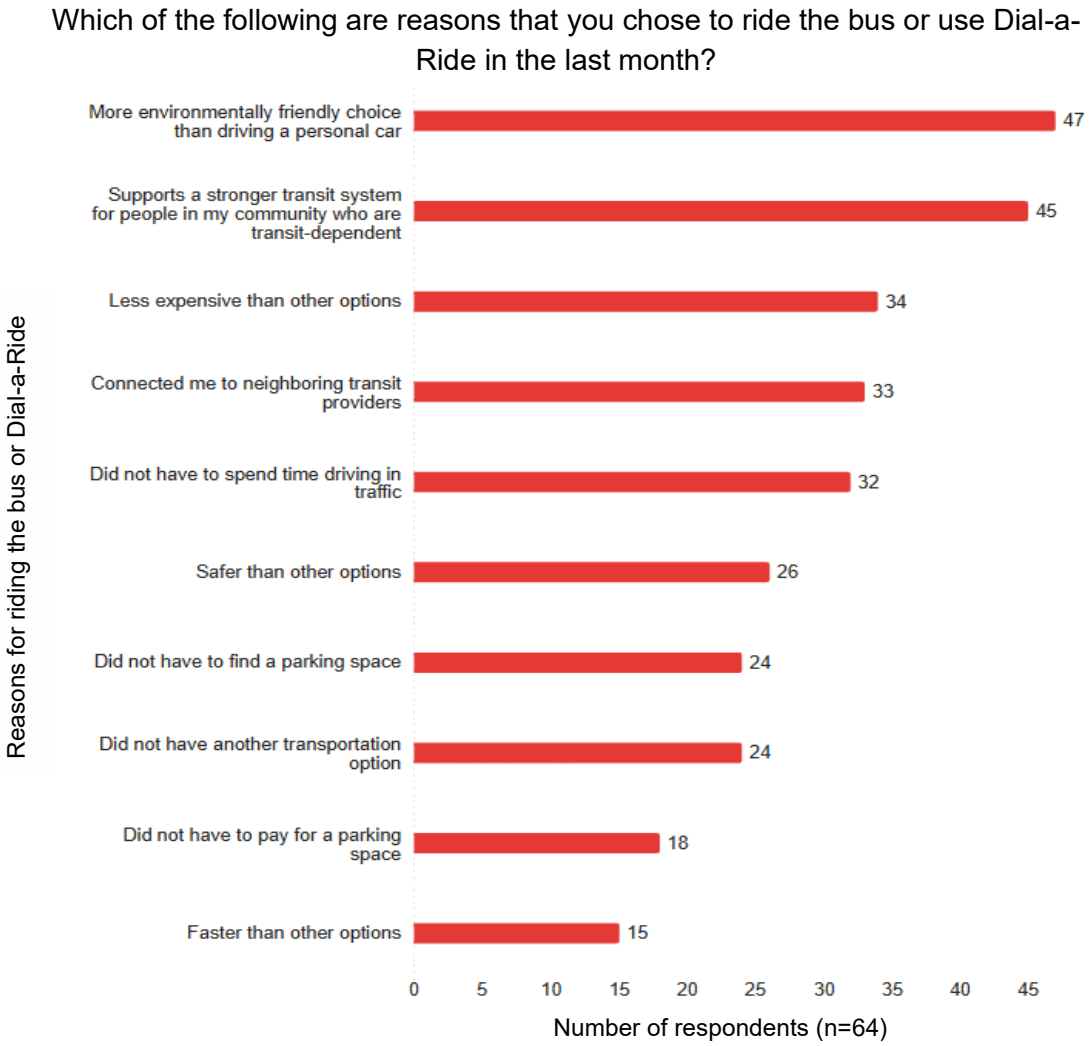

Figure 5: Respondents' reasons for riding the bus or using Dial-a-Ride

Reasons for Using a Personal Car

In a follow-up question, respondents *(n=130)* who used a personal car in the last month were asked about their reasons for doing so.

As shown in Figure 6, 85% of respondents indicated that they chose to use a personal car because it was faster than other options, while 83% of respondents indicated they were transporting groceries, luggage, or other large items. A total of 77% of respondents highlighted that they chose to use a personal car because the bus schedule did not align with their schedule. Other reasons respondents chose a personal car included that they were going somewhere outside of the bus service area *(71%)* and the bus schedule is too infrequent *(67%)*.

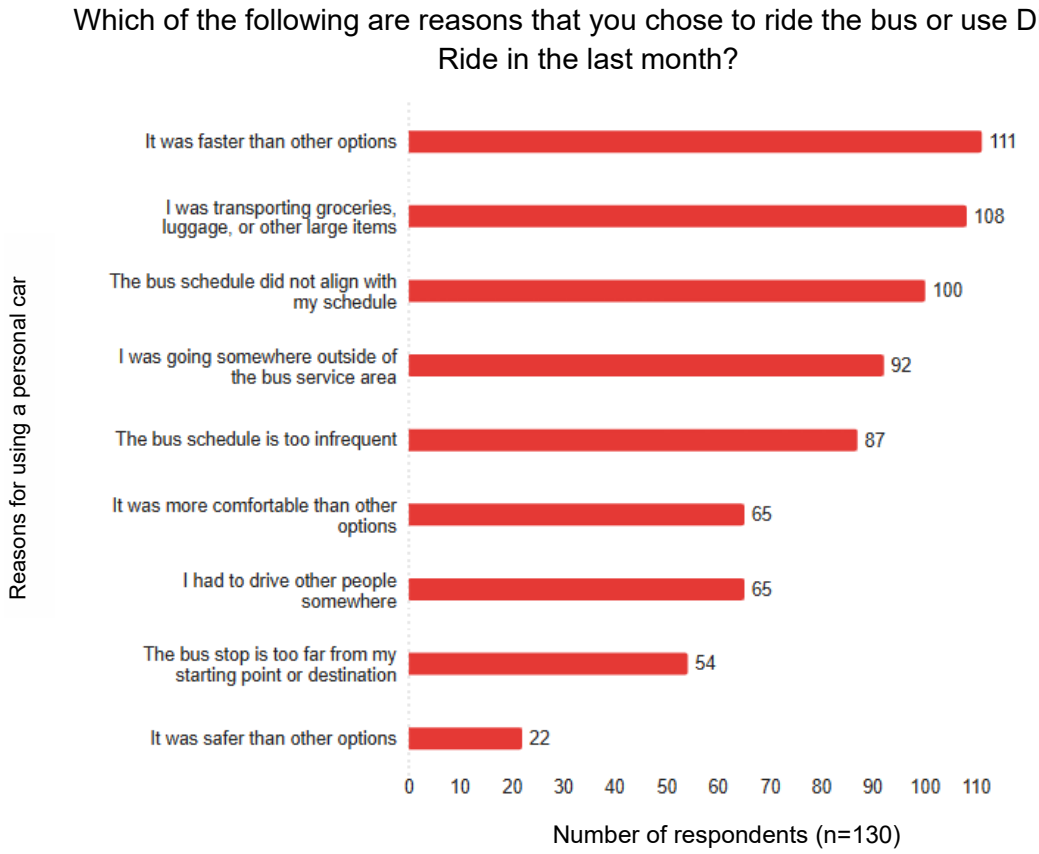

Figure 6: Respondents' reasons for using a personal car

Appendix C. Climate Action Plan Key Performance Indicators

Goal	KPI	Target	Measurement Method
Goal 1: Support countywide efforts to reduce transportation emissions.	Increase in Passenger Miles	A target for passenger miles will be established in 2025 based on the results of the Comprehensive Operational Analysis. The target should be set by JTA but informed by Jefferson County and other local groups.	Passenger miles will be compared to a 2024 baseline. *Note: Calculating passenger miles will require data for or an estimate of the average trip length on each route JTA offers.*
	Reduction in Countywide VMT	A target for countywide VMT will be established in 2025 based on the results of the Comprehensive Operational Analysis. The target should be set by JTA but informed by Jefferson County and other local groups.	Countywide VMT will be compared to a 2023 or 2024 baseline, depending on the availability of WSDOT VMT data
Goal 2: Reduce vehicle fleet emissions by 85% from 2022 levels by 2035 and by 95% from 2022 levels by 2050.	Reduction in Fleet Emissions	• 2035: Achieve an 85% reduction in vehicle fleet emissions from 2022 levels. • 2050: Achieve a 95% reduction in vehicle fleet emissions from 2022 levels. *Note: The 2035 and 2050 targets are based on projections that include state policies (Clean Fuel Standard and the Clean Energy Transformation Act).*	Collect annual data on fuel use, electricity use, and mileage by vehicle type. Monitor and report emissions data for the vehicle fleet using an emissions inventory conducted every three years. Compare the emissions data against the 2022 baseline to calculate percentage reductions noting annual and cumulative changes.
Goal 3: Achieve and maintain net-zero GHG emissions from JTA-controlled buildings and energy supply by 2045.	Reduction in Emissions from Buildings and Energy Supply	Achieve and maintain net-zero GHG emissions by 2045. *Note: This assumes that JTA will continue to source its electricity from JPUD and that JPUD will meet net-zero emissions by 2045, as required by the Clean Energy Transformation Act.*	Collect data on energy consumption from utility bills and on-site energy generation. Conduct an emissions inventory to quantify emissions associated with buildings and energy supply. Compare the emissions data against the 2022 baseline to calculate percentage reductions. Indicate the emissions offsets and savings resulting from energy generation.

Goal	KPI	Target	Measurement Method
Goal 4: Reduce GHG emissions associated with JTA employee commutes by 30% from 2022 levels by 2035 and by 80% from 2022 levels by 2050.	Reduction in Emissions from Employee Commutes	• 2035: Decrease emissions associated with employee commutes by 30% from 2022 levels. • 2050: Achieve a 80% reduction from 2022 levels.	Survey employees every three years to gather data on commuting behaviors and transportation modes used. Estimate total emissions based on the survey results and the average emission factors for different transportation modes. Compare emissions estimates to the 2022 baseline to determine progress toward the targets. Document the effectiveness and participation in employee incentive programs (if any).
Goal 5: Develop a resilient transit system that is adaptable to current and future climate challenges.	Ratio of Climate-Related Service Disruptions to Climate Events	Maintain or reduce the ratio of climate-related service disruptions to the number of climate events occurring each year.	Track both the number of climate-related service disruptions and the total number of climate events (e.g., floods, extreme heat) annually. Calculate the ratio of disruptions to events to assess resilience and response effectiveness. Analyze this data over time to identify trends, areas for improvement, and necessary adjustments to strategies to better adapt to increasing climate challenges.
	Average Duration of Climate-Related Service Disruptions	Achieve a year-over-year reduction in the average duration of climate-related service disruptions.	Track the duration of each climate-related service disruption and calculate the average duration annually. Analyze the data to identify patterns and implement strategies to shorten disruption times, such as improved response protocols and communication systems. Regularly review and adjust plans to enhance operational resilience.
Goal 6: Promote resilient facilities and infrastructure that can endure both current and future climate impacts.	Vulnerability Assessment Completion for Haines Place	Complete the vulnerability assessment by 2027.	Track the assessment process through regular status updates and milestones.
	Implementation of Climate Resilience Upgrades	Achieve 75% implementation of recommended upgrades (e.g., elevated equipment, improved drainage) or new construction that prioritizes resilience by 2035.	Monitor progress to track the completion percentage of upgrades against the total number of recommendations from the vulnerability assessment.

Goal	KPI	Target	Measurement Method
Goal 7: Contribute towards building a more climate-resilient region.	Participation in Emergency Response Meetings	Attend at least 80% of monthly Incident Management Team meetings annually.	Track attendance records and meeting minutes to ensure active participation in resilience planning and disaster relief discussions.
	Resilience and Disaster Relief Action Plan Updates	Complete and share an updated Resilience and Disaster Relief Action Plan with regional partners by the end of each fiscal year.	Maintain a version control system for the action plan, and document sharing events with partners to confirm dissemination.
Goal 8: Ensure meaningful implementation of the CAP through effective oversight, informed decision making, and clear accountability mechanisms.	Completion Rate of Annual Priority CAP Actions	Achieve a completion rate of 80% for priority CAP actions by the end of each year.	Track the number of priority actions completed against the total number of planned actions annually. This data can be gathered from the dedicated climate action team's reports and annual work plans.

Appendix D. Creating a Fleet Electrification Strategy

A key next step for JTA in advancing its fleet electrification goal is to develop a Fleet Electrification Strategy. This strategy will serve as a framework guiding the transition of the fleet from traditional combustion engines to electric vehicles (EVs). The primary recommended steps to compose and implement the Fleet Electrification Strategy are outlined below. It is important to note that fleet electrification will follow a cyclical approach that includes learning, planning, implementing, and iterating to continually refine the best strategies in response to the rapidly evolving EV landscape.

Recommended Steps for Fleet Electrification:

Step 1. Peer Learning: Engage with other transit agencies that have successfully electrified their fleets to gather insights on technology trends, battery capacity trajectories, charging requirements, and operational practices. For example, gather insights from Link Transit's (Wenatchee, Washington) inductive charging efforts, Capital Transit's (Juneau, Alaska) experiences in a wet maritime climate, and Kitsap Transit's (Kitsap County, Washington) strategies for charging and using less carbon-intensive liquid fuels. Document these insights to track progress and incorporate them as JTA advances through the electrification process.

Bus reliability has been a challenge so far for JTA due to software issues and other mechanical problems not related to the electric drivetrain. What learnings can peers offer to help increase vehicle uptime? Have other agencies been able to hold Original Equipment Manufacturers (OEMs) accountable? Is it possible to tie uptime performance metrics to future vehicle contracts?

Step 2. Data Gathering: Evaluate the current fleet, infrastructure, and operational needs, capturing real-world data from the existing battery electric bus (BEB). Gather one winter of consistent operations data to study vehicle energy needs, vehicle constraints or challenges, and areas that are working well. Use this data to help assess fleet size and energy needs effectively.

Step 3. Fleet Electrification Strategy: In collaboration with a subject matter expert, develop a Fleet Electrification Strategy aimed at achieving nearly 1:1 replacement of diesel buses and other fleet vehicles with EVs by 2035 and 2050. Key components of the strategy will include:

- **Vehicle Replacement Schedule:** A phased plan for replacing existing diesel buses with EVs of various sizes. Based on the findings from the Comprehensive Operational Analysis, the future fleet composition may look different from today's fleet.
- **Charging Strategy:** A plan to establish sufficient EV charging infrastructure to support fleet electrification, including both bus yard and on-route charging. Integrate managed charging solutions to reduce operational costs and minimize capital expenditures.
- **Emergency Continuity Plan:** Develop a plan to ensure operational continuity during emergencies, including a strategy for a secure power supply.

Step 4. Training and Education: Design and implement training programs for maintenance staff and operators focused on EV technologies, driver efficiency, and charging systems. As possible, work with local transit agencies to utilize existing training materials and resources. Additionally, provide ongoing education on technology trends, charging requirements, and

operational best practices to promote buy-in and reduce frustration.

Conduct training sessions with East Jefferson Fire and Rescue to prepare for emergency situations. Establish and adopt best practices for vehicle spacing in the bus yard and the use of fire blankets and other mitigation techniques to prevent total loss in the case of fire.

Step 5. Funding and Budgeting: Continuously identify and seek funding to support fleet electrification. Potential sources may include federal, state, and local grants, as well as partnerships with utilities like Jefferson Public Utility District (JPUD) for transit-specific rate designs. Collaborate with JPUD to leverage low interest loans from the Rural Energy Savings Program for charging infrastructure.

Step 6. Pilot Projects: Launch pilot projects using initial EVs to evaluate performance, identify challenges, and refine strategies informed by real-world data.

Step 7. Infrastructure Deployment: Install EV charging stations at key transit properties, including inductive charging at the Four Corners bus yard and infrastructure at the redesigned Haines Place Transit Center.

Step 8. Evaluate and Iterate: Regularly assess the outcomes of fleet electrification efforts, using real-world data on energy usage, vehicle performance, and charging efficiency to refine strategies. Additionally, gather information on technology trends annually to reassess industry advancements in areas such as battery capacity, costs, and software issues.

Step 9. Scale Up: As technology evolves and as existing fleet vehicles reach the end of their useful life, expand the fleet electrification program until replacement goals are met.